

IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF VIRGINIA  
Norfolk Division

CENTRIPETAL NETWORKS, INC.,

Plaintiff,

v.

CISCO SYSTEMS, INC.,

Defendant.

CIVIL ACTION NO.  
2:18cv94

**\* \* CONFIDENTIAL INFORMATION REDACTED \* \***

TRANSCRIPT OF VIDEOCONFERENCE BENCH TRIAL PROCEEDINGS

Norfolk, Virginia

May 13, 2020

Volume 6A  
Pages 719-826

BEFORE: THE HONORABLE HENRY COKE MORGAN, JR.  
United States District Judge

APPEARANCES:

KRAMER LEVIN NAFTALIS & FRANKEL LLP

By: Paul J. Andre  
James R. Hannah  
Counsel for the Plaintiff

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By: Matthew C. Gaudet  
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## I N D E X

PLAINTIFF'S  
WITNESSPAGE

MICHAEL MITZENMACHER, Ph.D.

Direct Examination (Resumed) By Mr. Hannah 724

Cross-Examination By Mr. Gaudet 775

## E X H I B I T S

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09:44:57AM 1 (Proceedings commenced at 10:00 a.m.)

10:00:15AM 2 THE CLERK: Civil Action Number 2:18cv94,

10:00:19AM 3 Centripetal Networks, Inc. v. Cisco Systems, Inc.

10:00:20AM 4 For the plaintiff, Mr. Andre, Mr. Noona, are you

10:00:24AM 5 ready to proceed?

10:00:28AM 6 MR. ANDRE: Lori, we don't have the audio or video

10:00:31AM 7 of the Judge, either.

10:00:44AM 8 (There was a pause in the proceedings.)

10:00:58AM 9 THE CLERK: Mr. Jameson, are you ready to proceed?

10:01:01AM 10 MR. JAMESON: We are, Your Honor.

10:01:03AM 11 THE COURT: All right. I'll hear from the

10:01:07AM 12 plaintiffs as to the schedule.

10:01:11AM 13 MR. ANDRE: Thank you, Your Honor. Paul Andre, for

10:01:14AM 14 Centripetal.

10:01:14AM 15 As you can surmise, we underestimated the amount of

10:01:19AM 16 time it would take to get our evidence in for

10:01:22AM 17 Dr. Mitzenmacher, and we are making adjustments accordingly.

10:01:26AM 18 We had anticipated having him off yesterday morning and

10:01:29AM 19 having Mr. Cole start yesterday afternoon, but as it stands

10:01:33AM 20 now, we're going to finish Dr. Mitzenmacher this morning on

10:01:36AM 21 the last patent, the '205 patent.

10:01:38AM 22 We'll have Dr. Cole up, depending on how long the

10:01:40AM 23 cross is, this afternoon, and that will conclude our

10:01:43AM 24 infringement proofs in the case. Dr. Cole will cover the

10:01:46AM 25 last two patents.

10:01:48AM 1 Tomorrow, to the extent we need to finish Dr. Cole,  
10:01:53AM 2 we'll do so. Then we have our corporate representative,  
10:01:57AM 3 Jonathan Rogers, who will be taking the stand for about 45  
10:02:00AM 4 minutes or so. We have Dr. Nenad Medvidovic, who will take  
10:02:04AM 5 the stand after that for about 30 to 45 minutes, and  
10:02:07AM 6 Mr. Chris Gibbs, a fact witness for Centripetal.

10:02:09AM 7 To try to accommodate the overage we had with  
10:02:13AM 8 Dr. Mitzenmacher, we have decided to drop two of our expert  
10:02:17AM 9 witnesses, Your Honor, Drs. Goodrich and Valerdi. These  
10:02:24AM 10 witnesses testified at the last trial, at the Keysight trial.  
10:02:28AM 11 We thought they were helpful to the jury to help understand  
10:02:32AM 12 how software is developed and the cost of doing so. I don't  
10:02:33AM 13 think it's necessary for Your Honor to have that testimony.  
10:02:35AM 14 I think Your Honor is well aware of the cost to build these  
10:02:40AM 15 complex software systems. It costs hundreds of millions of  
10:02:45AM 16 dollars.

10:02:45AM 17 So we don't think it would be necessary, A, to the  
10:02:48AM 18 Court to have those two experts. We did -- we originally had  
10:02:53AM 19 this case as a jury trial, so we had those experts lined up,  
10:02:56AM 20 and we thought we'd bring them into the court, but I think  
10:02:59AM 21 it's not -- it won't affect our case to drop those two, and  
10:03:03AM 22 that picks up at least a half a day of the schedule we lost  
10:03:06AM 23 to Dr. Mitzenmacher.

10:03:07AM 24 So, assuming Mr. Gibbs is done, that leaves us with  
10:03:11AM 25 the final damages portion of the case, which I think move

1 very quickly, and that's Dr. Striegel, Mr. Gunderson, and  
2 Mr. Malackowski, and I think they'll be finished by Monday.

3 THE COURT: Well, that will still leave us a full  
4 day behind, but what about the defendants? Is it reasonable  
5 to forecast how long it will take to present their case at  
6 this point?

7 MR. JAMESON: Your Honor, a lot of what we're going  
8 to have to do as a threshold matter in our case is going to  
9 be dependent on the evidence that Centripetal offers on this  
10 copying issue that they're pursuing. And, as I understand  
11 it, we are going to potentially be hearing from two experts  
12 on copying, Mr. Rogers on copying, and it now sounds like  
13 Chris Gibbs.

14 I will note an objection for the record that  
15 Mr. Gibbs has not been disclosed in a timely manner, pursuant  
16 to the pretrial order, so it's news to us that they're going  
17 to call him as a witness now, or at least would like to. But  
18 if they go down this copying road, then we are going to have  
19 to spend a fair amount of time calling witnesses to rebut it,  
20 and that could be as many as -- that could be as many as  
21 seven witnesses from Centripetal that we would have to play  
22 video of. It will probably take an hour and a half or so to  
23 play that video, but it will also require us to call Cisco  
24 witnesses, as well, that we otherwise would not be calling in  
25 this case to deal with that issue.

~~Mitzenmacher, M. - Direct~~

10:05:23AM 1 So, I mean, they have the right obviously to pursue  
 10:05:28AM 2 this copying allegation, but it is a complicating factor in  
 10:05:32AM 3 the case. Right now, what I would ask is that with respect  
 10:05:39AM 4 to our responsive case, that we have an equal amount of time  
 10:05:44AM 5 to whatever Centripetal uses, plus whatever they think  
 10:05:50AM 6 they're going to use in rebuttal, to put on our responsive  
 10:05:54AM 7 case.

10:05:58AM 8 THE COURT: Well, that's going to run well over what  
 10:06:00AM 9 was projected for the case, but...

10:06:09AM 10 Well, let's get started.

10:06:13AM 11 MR. ANDRE: Thank you, Your Honor. Mr. Hannah will  
 10:06:16AM 12 be taking Dr. Mitzenmacher, and I'll let them come on the  
 10:06:19AM 13 screen at this point.

10:06:21AM 14 MICHAEL MITZENMACHER, Ph.D., called by the  
 10:06:21AM 15 Government, having been previously duly sworn, was examined  
 10:06:21AM 16 and testified further as follows:

10:06:28AM 17 MR. HANNAH: Good morning, Your Honor.

10:06:30AM 18 THE COURT: Good morning.

10:06:32AM 19 MR. HANNAH: May it please the Court, may I continue  
 10:06:35AM 20 the examination?

10:06:36AM 21 THE COURT: Yes.

10:06:37AM 22 MR. HANNAH: Thank you, Your Honor.

10:06:26AM 23 DIRECT EXAMINATION (Resumed)

10:06:38AM 24 BY MR. HANNAH:

10:06:39AM 25 Q. Dr. Mitzenmacher, I'd like to start out first with what

Mitzenmacher, M. - Direct

10:06:43AM 1 is the first date of infringement for the '193 patent?

10:06:47AM 2 And if we can pull up JTX-4.

10:06:53AM 3 A. My understanding is the first date of infringement is  
10:07:05AM 4 when the patent was issued, which is June, I guess, 2017,  
10:07:14AM 5 June 20th.

10:07:15AM 6 Q. Thank you. And I think you cut off. Did you say  
10:07:18AM 7 June 20, 2017, for the first --

10:07:21AM 8 A. Sorry. June 20, 2017, the date of issue.

10:07:23AM 9 Q. All right, great. Thank you. Let's turn to the '205  
10:07:27AM 10 patent. Let's look at JTX-1.

10:07:40AM 11 Doctor, is this the '205 patent that you provided  
10:07:43AM 12 your opinion on?

10:07:43AM 13 A. Yes.

10:07:47AM 14 Q. If we turn to the first slide, what was your ultimate  
10:07:52AM 15 opinion with regard to the '205 patent?

10:07:55AM 16 A. That claims 63 and 77 were infringed by Cisco products.  
10:08:01AM 17 These are the same products we discussed last time, the  
10:08:05AM 18 routers and switches, in combination with the Digital Network  
10:08:09AM 19 Architecture, and the firewalls, in conjunction with the  
10:08:14AM 20 Firepower Management Center.

10:08:17AM 21 Q. And like we did for your previous testimony, when we  
10:08:23AM 22 refer to the Catalyst switches or just switches, are we  
10:08:27AM 23 referring to the Catalyst switches in the different series  
10:08:30AM 24 that you identified previously in your testimony as  
10:08:32AM 25 infringing?

—Mitzenmacher, M. - Direct—

10:08:32AM 1 A. Yes, and the same for the routers and firewalls.

10:08:35AM 2 Q. And that's going to be for the Aggregated Services

10:08:39AM 3 Routers, if we recall those routers, or the Integrated

10:08:42AM 4 Services Routers? Those would be routers?

10:08:43AM 5 A. Yes.

10:08:44AM 6 Q. And then for the Firepower, firewalls, we can call them

10:08:49AM 7 firewalls, and the Adaptive Security Appliance will also be

10:08:52AM 8 referred to as firewalls, plus the Firepower Management

10:08:54AM 9 Center?

10:08:54AM 10 A. Yes.

10:08:56AM 11 Q. So if we take a quick look --

10:08:59AM 12 MR. HANNAH: And, Your Honor, in terms of the order

10:09:01AM 13 of presentation, in order to streamline things, I'm just

10:09:04AM 14 going to go through the patent one time, but we're going to

10:09:08AM 15 go through all of the products. So we'll just show an

10:09:11AM 16 element, and then we're going to show the Catalyst switches,

10:09:14AM 17 the ASR, the routers, and also the firewalls at one time,

10:09:19AM 18 rather than run through the patent twice, like we did before.

10:09:21AM 19 THE COURT: All right.

10:09:22AM 20 BY MR. HANNAH:

10:09:24AM 21 Q. If we can go to your demonstrative, can you briefly

10:09:32AM 22 explain what this is showing, in terms of the '205 patent,

10:09:36AM 23 with the dynamic security policy?

10:09:38AM 24 A. As we've seen for all of these systems, they will be

10:09:45AM 25 given threat intelligence, or gather or absorb threat



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1 intelligence, and they can use that to update the rules.

2 In particular, just generally, they have dynamic

3 security policies. They're constantly getting new

4 information, and over time, they will often update the rule

5 sets in order to deal with new threats accordingly.

6 Q. If we turn to the demonstrative regarding the firewalls,

7 does that operate in a similar manner?

8 A. Yes, it does.

9 Q. If we turn to claims 63 and 77 of the '205 patent,

10 similar to the previous patents that we looked at, on the

11 left-hand side we have a system and some elements, and then

12 on the right side we have claim 77, with one or more

13 non-transitory computer-readable media.

14 Can you, please, explain what's required by these  
15 claim elements?

16 A. Yes. So for the system claim, there's a security policy

17 management server. So this would be the Digital Network

18 Architecture center, in particular, along with components

19 such as ISE that are used to spread the policies for the

20 routers and switches, and the Firepower Management Center for

21 the firewalls, and there's also one or more packet security

22 gateways associated with the policy management server that

23 performs various actions that we'll be talking about. These

24 would be the switches and routers or the firewalls for our

25 two situations.

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1           So that is the system claim, and claim 77 is another  
2 computer-readable media claim which is focused on the  
3 underlying software, as opposed to the system that runs  
4 through the same types of -- or meets the performance issues  
5 that we'll be talking about.

6 Q. For claim 77, where it refers to a packet security  
7 gateway for the switches and routers, are those the switches  
8 and routers in your opinion?

9 A. Yes.

10 Q. And would the DNA center with the ISE -- that would be  
11 the packet security -- I mean, the security policy management  
12 server for claim 77?

13 A. Yes.

14 Q. And then for the firewalls, would the firewalls be the  
15 packet security gateways?

16 A. Yes.

17 Q. And the Firepower Management Center would be the security  
18 policy management server?

19 A. Yes.

20 Q. All right. Let's take a look at PTX-1294.

21           MR. HANNAH: PTX-1294, Your Honor, has already been  
22 admitted into evidence.

23 BY MR. HANNAH:

24 Q. If we go to Page 15 of this document, at the bottom it  
25 says, "Policy Creation."

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1 Doctor, can you explain how this supports your  
2 opinion as to whether the DNA center is a security policy  
3 management server?

4 A. Certainly. As we discussed before, the DNA center can  
5 create and pass through policies that will be used by the  
6 routers and switches, and, in particular, they relate to the  
7 policies that are discussed of the types in this claim, and  
8 this is the methodology used to create dynamic security  
9 policies for the Cisco products.

10 Q. When it says that the policies, in the second line, can  
11 be adjusted dynamically, what does that mean?

12 A. So again based on network conditions, based on  
13 information, the policies that get passed on to routers and  
14 switches, can be changed to deal with security -- new or  
15 growing security threats appropriately.

16 THE COURT: So the DNA center receives threat  
17 intelligence from sources, a number of sources, and sends it  
18 to the routers and the switches and also to the Firepower  
19 management system, which, in turn, sends it to the firewalls.  
20 Is that the way it works?

21 THE WITNESS: I think the threat intelligence for  
22 the firewalls for the Firepower Management Center can come in  
23 separately. It doesn't have to go through the DNA center.

24 But that's the right picture, exactly; that the DNA  
25 center and the Firepower Management Center each get this

Mitzenmacher, M. - Direct

1 information and pass it on to their respective devices, the  
2 firewalls or the routers and switches.

3 THE COURT: It just goes through a different gateway  
4 than the routers and switches?

5 THE WITNESS: Yeah. A different path, yeah.

6 THE COURT: But the function is the same?

7 THE WITNESS: The function is, yes, the same or very  
8 similar.

9 THE COURT: All right.

10 BY MR. HANNAH:

11 Q. Doctor, I'd like to take you to PTX-1284.

12 MR. HANNAH: Your Honor, this has not been admitted  
13 into evidence.

14 BY MR. HANNAH:

15 Q. Doctor, can you, please, explain what PTX-1284 is?

16 A. PTX-1284 is a Cisco, I guess, at-a-glance sheet. This is  
17 something that you would give to customers or potential  
18 customers describing the products.

19 Q. If we go to package --

20 MR. HANNAH: Your Honor, at this point I'd like to  
21 move PTX-1284 into evidence, please.

22 THE COURT: That will be admitted.

23 (Plaintiff's Exhibit PTX-1284 was received in  
24 evidence.)

25 MR. HANNAH: Thank you, Your Honor.

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1 BY MR. HANNAH:

2 Q. If we go to Page 2 of this document, Doctor, on the last  
3 paragraph in the diagram that we see there, it talks about,  
4 "You can also enable intelligent automated policy updates  
5 based on vulnerability data, ensuring that your policies are  
6 always up to date, based on the latest vulnerability levels."

7 Do you see that?

8 A. Yes.

9 Q. And do you also see where it says there's dynamic policy  
10 changes?

11 A. Yes, I do.

12 Q. Does this inform your opinion as to whether the DNA  
13 center with ISE creates and sends dynamic security policies?

14 A. Right. So this is describing, you know, the ISE  
15 approach, in conjunction with the DNA center.

16 THE COURT: The what approach?

17 THE WITNESS: I-S-E, the Identity Services Engine,  
18 which is part of the Digital Network Architecture. So it's  
19 shown there. It's called ISE, so they often call it "ice."  
20 I'll try not to use the acronym. I'm sorry. The Identity  
21 Services Engine.

22 But if you look at the picture, you can sort of see  
23 that there's analysis, that it's going through various sorts  
24 of additional other --

25 MR. GAUDET: Your Honor, I apologize for

~~Mitzenmacher, M. - Direct~~

1 interrupting, but if I can interpose an objection.

2 Again, the Internet Services Engine is a separate  
3 standalone product that they did not accuse and that the  
4 witness did not provide an opinion on in identifying what  
5 products were accused on the '205 patent. He identified the  
6 Identity Services Engine on other patents, but as a matter of  
7 basic notice, he did not identify this on this patent.

8 THE COURT: Well, again, that boils down to an  
9 argument over whether it's part of a system that was noticed,  
10 so that's a matter of argument.

11 So you may proceed.

12 MR. GAUDET: Thank you, Your Honor.

13 BY MR. HANNAH:

14 Q. Doctor, can you, please, continue. I believe you were  
15 talking about the dynamic policy changes.

16 A. Yes. So you can see the sort of analysis part on the  
17 left. Things like Rapid7 are sort of other organizations  
18 that sort of gather and make use of that intelligence. It  
19 goes through a standardized reporting, and through the  
20 Digital Network Architecture, you get these dynamic policy  
21 changes, where it actually changes the corresponding policy.

22 Q. Thank you, Doctor. The claim element that we're looking  
23 at also require the packet security gateways.

24 I'd like you to turn your attention to PTX-585.

25 MR. HANNAH: And, Your Honor, this has not been

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admitted into evidence.

BY MR. HANNAH:

Q. Doctor, can you, please, explain what PTX-585 is?

A. PTX-585 is, again, a Cisco public document, as it says on the left, and it discusses the operating system, or the routers and switches.

MR. HANNAH: Your Honor, at this point we'd like to move PTX-585 into evidence, please.

(There was a pause in the proceedings.)

MR. GAUDET: No objection.

THE COURT: All right. This is the operating system. So you're accusing a different operating system in the '205 patent than you accused in the other patents? Is that why we're looking at this?

THE WITNESS: No, it's the same one. I think this is just to point to something specific in the operating system, as it relates to the dynamic security policy.

THE COURT: All right. So we're still talking about the same operating system we were talking about in the prior patent?

THE WITNESS: Yes, sir.

THE COURT: Okay. Go ahead.

(Plaintiff's Exhibit PTX-585 was received in evidence.)

BY MR. HANNAH:

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10:20:42AM 1 Q. Doctor, I'd like to turn your attention to Page 3 of this  
10:20:49AM 2 document. Can you explain how this document -- particularly,  
10:20:52AM 3 on the left-hand side where it talks about the built-in  
10:20:54AM 4 security, how does this inform your opinion as to whether the  
10:20:58AM 5 switches and routers are packet security gateways?

10:21:01AM 6 THE COURT: Page 3. Is this -- is this Bates 410?

10:21:08AM 7 MR. HANNAH: 410, yes, Your Honor.

10:21:12AM 8 THE WITNESS: All right. So in the top left it's  
10:21:14AM 9 talking about as part of the operating system, they have the  
10:21:19AM 10 built-in security. You know, this is, I think, a key point  
10:21:24AM 11 of this generation of products. You can see down towards the  
10:21:29AM 12 bottom, you know, "Our approach is much more than just adding  
10:21:35AM 13 security as an afterthought to existing products. It's about  
10:21:38AM 14 embedding security into the essence of our products during  
10:21:41AM 15 the design phase. The result is that security is a primary  
10:21:45AM 16 design consideration, deeply integrated into the underlying  
10:21:51AM 17 architecture."

10:21:54AM 18 THE COURT: This is architecture for --

10:21:58AM 19 THE WITNESS: The routers and switches.

10:21:59AM 20 THE COURT: -- the operating systems for the  
10:22:00AM 21 switches and routers; is that right?

10:22:02AM 22 THE WITNESS: Yes, sir.

10:22:09AM 23 And, again, I can touch on the exact wording, but  
10:22:15AM 24 it's in the patent and in the claim construction regarding  
10:22:19AM 25 what a packet security gateway is, but, in particular, it's



—Mitzenmacher, M. - Direct—

10:22:22AM 1 something that gets packets and applies security rules,  
10:22:26AM 2 including the ability to drop on those packets, and that's  
10:22:30AM 3 what we see in the switches and routers here.  
10:22:33AM 4 BY MR. HANNAH:  
10:22:34AM 5 Q. And, Doctor, is this also based on the document that you  
10:22:37AM 6 reviewed for the '806 and the '193 patents, in which we saw  
10:22:43AM 7 numerous documents in which the switches and routers are able  
10:22:46AM 8 to drop packets?  
10:22:47AM 9 A. Yes, we had gone over that in the previous patents.  
10:22:50AM 10 Q. And so would those documents equally apply here to this  
10:22:54AM 11 element as well?  
10:22:54AM 12 A. Yes.  
10:22:55AM 13 Q. Elements for both claims?  
10:22:56AM 14 A. Yes, they would.  
10:22:57AM 15 Q. And, Doctor, you also relied on several documents talking  
10:23:01AM 16 about how the routers could be at the edge of the network and  
10:23:05AM 17 that they can support security features. And we saw those  
10:23:11AM 18 with the '806 and the '193. Would those documents equally  
10:23:17AM 19 apply to this limitation of the packet security gateway?  
10:23:20AM 20 A. Yes, they would.  
10:23:21AM 21 Q. With that, Doctor, I'd like to turn your attention to  
10:23:24AM 22 PTX-1289. And we're switching gears here, talking about the  
10:23:27AM 23 firewalls, the firewall management center.  
10:23:34AM 24 MR. HANNAH: Your Honor, PTX-1289 has been admitted  
10:23:36AM 25 into evidence.

~~Mitzenmacher, M. - Direct~~

10:23:40AM 1 THE COURT: Okay.

10:23:41AM 2 BY MR. HANNAH:

10:23:41AM 3 Q. If we turn to Page 1595 of this document, with the same  
10:23:50AM 4 corresponding Bates number, 1595, Doctor, looking at where it  
10:23:54AM 5 says, "The TID configuration changes do not require  
10:24:00AM 6 redeployment," looking at this passage in this document, can  
10:24:02AM 7 you explain your opinion as to whether the Firepower  
10:24:08AM 8 Management Center is a security policy management server?  
10:24:11AM 9 A. Right. So it's a security policy management server  
10:24:17AM 10 because it's used to change or manage the policies on the  
10:24:21AM 11 corresponding devices, the firewalls, and that's described  
10:24:25AM 12 here, particularly with the Threat Intelligence Director that  
10:24:30AM 13 we were talking about yesterday.

10:24:33AM 14 With the Threat Intelligence Director, after initial  
10:24:37AM 15 deployment of the access control policy to the managed  
10:24:42AM 16 devices, you can configure sources, indicators, and  
10:24:44AM 17 observables without redeploying, and the system automatically  
10:24:48AM 18 publishes new Threat Intelligence Director data to the  
10:24:53AM 19 elements. And that's what we were talking about yesterday,  
10:24:56AM 20 where, you know, the threat, through the use of, in the case  
10:24:57AM 21 of a firewall, the Threat Intelligence Director, you can  
10:25:01AM 22 update the rules that the firewalls are using.

10:25:08AM 23 THE COURT: Well, in other words, once they're  
10:25:14AM 24 configured -- that's what we were talking about yesterday  
10:25:16AM 25 when we said they switched systems so that they wouldn't have

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1 two sets of rules operating at the same time. Now they  
2 switch over to the new set of rules once they're configured.

3 And we had the same storage issue here. In the new  
4 system, it stores them while they're reconfiguring the new  
5 rules, instead of having both sets of rules in the system at  
6 the same time. Is that what this means?

7 THE WITNESS: This is specifically, I think, talking  
8 about just the fact that there are second rule sets; that  
9 these rule sets keep updating.

10 The patent yesterday was focused on this issue of  
11 how the swap occurs, and this is a statement, you know, which  
12 is in line with everything we said yesterday, which matches  
13 what we said yesterday, which is that you are updating the  
14 rules, and the rules are updated on a regular basis, through  
15 the Threat Intelligence Director information.

16 They're aligned. They're talking about different, I  
17 think, aspects of the same problem.

18 THE COURT: In other words, the rules -- the end  
19 result is that the rules change without the threat of  
20 dropping any package by virtue of the changeover.

21 THE WITNESS: Yes, absolutely.

22 THE COURT: Okay.

23 BY MR. HANNAH:

24 Q. All right. Doctor, now, yesterday we saw many documents  
25 about the actual firewalls, which includes the Firepower and

Mitzenmacher, M. - Direct

the ASA.

Based on those documents that you reviewed, is it your opinion that the firewalls meet the packet security gateways, as recited in the claims?

A. Yes, it is.

Q. Can you just explain briefly why?

A. Again, as we saw with the firewalls, too, is they get packets, they apply rules to the packets to determine whether the packets are allowed or not allowed, whether they have to be dropped, and, as such, they act as gateways.

Q. So, Doctor, based on the documents you reviewed and the documents we talked about yesterday and today, is it fair that both the switches, the routers, and the firewalls meet the first set of elements that we have highlighted here for claim 63 and claim 77?

A. Yes.

Q. We can check that box?

A. Yes.

Q. All right. So moving on to the next element, can you, please, explain what is required by this element?

A. So this element is talking about certain types of dynamic security policies. So, in particular, the sort of policies that we're dealing with for this patent are supposed to -- you have a policy that has at least one rule, and at least one rule, so the contents of the policy have to specify

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10:28:48AM 1 sets -- a set of network address and what's called a Session  
10:28:52AM 2 Initiation Protocol, or SIP, URI, Uniform Resource  
10:29:00AM 3 Identifier.

10:29:00AM 4 Q. Can you explain what that is?

10:29:02AM 5 A. So Session Initiation Protocol is one of the, I guess,  
10:29:07AM 6 many protocols used to transport information over the  
10:29:12AM 7 Internet. SIP is used often for voice, but also for video or  
10:29:18AM 8 other sorts of information, like, I think, some instant  
10:29:22AM 9 messaging protocols, and so on.

10:29:26AM 10 And a Uniform Resource Identifier is an identifier  
10:29:31AM 11 for -- you know, an identifier for a location or a place or  
10:29:41AM 12 an object within the system.

10:29:45AM 13 Q. And based on the documents that you reviewed and the  
10:29:49AM 14 testing that you did, do the switches, the routers, and the  
10:29:53AM 15 firewalls -- do they meet the receive claim element and  
10:30:00AM 16 process the SIP information, or the S-I-P, which is the  
10:30:06AM 17 Session Initiation Protocol you just referred to?

10:30:08AM 18 A. Yes.

10:30:09AM 19 Q. So, Doctor, I'd like to turn your attention to PTX-1408.

10:30:14AM 20 MR. HANNAH: This has not been admitted into  
10:30:16AM 21 evidence.

10:30:16AM 22 BY MR. HANNAH:

10:30:17AM 23 Q. Doctor, can you briefly explain what this document is?

10:30:19AM 24 A. This is another of the Cisco Live presentations that  
10:30:25AM 25 Cisco puts on to interact with its customers.

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1 MR. HANNAH: Your Honor, at this time we'd like to  
2 move PTX-1408 into evidence, please.

3 THE COURT: PTX-1408. All right. This deals with  
4 internet operating system security.

5 MR. HANNAH: Exactly, Your Honor.

6 THE COURT: Okay.

7 (Plaintiff's Exhibit PTX-1408 was received in  
8 evidence.)

9 MR. HANNAH: Thank you, Your Honor. It's been  
10 admitted, 1408?

11 THE COURT: Yes.

12 MR. HANNAH: Okay. Thank you.

13 BY MR. HANNAH:

14 Q. If we go to Page 19 of this document, Doctor, can you,  
15 please, explain, first of all, what products this applies to  
16 and what's being shown on this page?

17 A. So up at the top you can see it's saying, "Advanced IOS  
18 security." The OS there is the operating system, so this is  
19 for the routers and switches. You can see the little router  
20 brick in the diagram.

21 And it talks about data plane security on the left  
22 and, in particular, that it deals with SIP traffic for voice  
23 phones. So that's the Session Initiation Protocol, or SIP,  
24 that was in the patent, and it's talking about how it can use  
25 it for security for these voice phone calls that can go

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10:32:43AM 1 through the Session Initiation Protocol.

10:32:46AM 2 Q. And when you say, "data plane," can you briefly explain  
10:32:51AM 3 what is the data plane?

10:32:52AM 4 A. The data plane, like it sounds like, is talking about the  
10:32:57AM 5 data that's going through the network. So usually when you  
10:32:59AM 6 talk about the network, as you can see on this slide, it's  
10:33:03AM 7 divided into like data information and control information.

10:33:07AM 8 So the control information would be the sort of  
10:33:13AM 9 things that you're sending to the routers or switches in  
10:33:17AM 10 order to manage them, so they know where to send various  
10:33:21AM 11 sorts of traffic, and the data is the actual traffic that  
10:33:24AM 12 it's sending.

10:33:25AM 13 THE COURT: Why does it use the term "voice phones"  
10:33:29AM 14 here?

10:33:29AM 15 THE WITNESS: So these days a lot of -- it's called  
10:33:35AM 16 voice over IP or VoIP, voice over the Internet Protocol.  
10:33:42AM 17 These days a lot of phone traffic is done over the Internet.  
10:33:47AM 18 Instead of using the old style phone system, we've changed to  
10:33:52AM 19 using phones that actually deliver packets over the Internet.

10:34:00AM 20 BY MR. HANNAH:

10:34:00AM 21 Q. And is SIP often used for voice over IP or VoIP?

10:34:07AM 22 A. Yes. So the Session Initiation Protocol is one of those  
10:34:10AM 23 protocols that's used to allow you to send voice information,  
10:34:14AM 24 to send voice data over the Internet.

10:34:16AM 25 Q. So often in Cisco's document when it's talking about

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10:34:22AM 1 phone data or voice data, it's talking about SIP traffic?

10:34:26AM 2 A. Yes.

10:34:27AM 3 Q. I'd like to turn your attention to PTX-1319.

10:34:33AM 4 PTX-1319 has not been admitted into evidence, so,  
10:34:37AM 5 Doctor, can you please explain what PTX-1319 is?

10:34:40AM 6 A. This is talking about access control policies from -- and  
10:34:46AM 7 how they're -- and how they function in the Cisco DNA center,  
10:34:54AM 8 the Digital Network Architecture center.

10:34:56AM 9 THE COURT: Just a moment, now.

10:34:58AM 10 This is PTX-1319, and this deals with access control  
10:35:25AM 11 policy within the DNA of the operating system.

10:35:40AM 12 THE WITNESS: It's going to be about how it controls  
10:35:43AM 13 the policies on the routers and switches.

10:35:48AM 14 THE COURT: In other words, what rules are going to  
10:35:55AM 15 make up the policy?

10:35:59AM 16 THE WITNESS: Yes.

10:36:01AM 17 MR. HANNAH: Your Honor, I'd like to move PTX-1319  
10:36:04AM 18 into evidence, please.

10:36:06AM 19 THE COURT: That will be admitted.

10:36:07AM 20 (Plaintiff's Exhibit PTX-1319 received in evidence.)

10:36:08AM 21 BY MR. HANNAH:

10:36:09AM 22 Q. If we go to Page 8 of this document, it has the same  
10:36:11AM 23 corresponding Bates label, which is 0008.

10:36:17AM 24 If we look under IP- -- well, Doctor, can you please  
10:36:23AM 25 explain what's being shown here on the screen and, in



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1 particular, when it talks about the IP-based access control,  
2 what that means?

3 A. Certainly. So this is a screen showing, I guess, the  
4 setup or how one might interact with the DNA center, so this  
5 is showing part of the user interface.

6 So this is how a human might interact with it, and  
7 the key issue here is this IP-based access control. The IP  
8 is the Internet Protocol, and, in particular, the Internet  
9 Protocol is what gives devices addresses. These addresses  
10 just look like long numbers, but they're the addresses that  
11 the network uses to know where to send traffic to. So every  
12 sort of device that is on the network will have an address,  
13 and, just like with postal mail, the address is what is used  
14 in order to get your mail from where it was sent to you.  
15 Same here. The Internet Protocol gives the addresses to make  
16 sure that your mail gets to you.

17 And, in particular, the claim element calls for  
18 network addresses and the rules. And, you know, Internet  
19 Protocol addresses, these are exactly the things that show up  
20 in the rules, and this is one of the things that is in the  
21 interface, where you could do it directly; although, the  
22 program would also do it more automatically based on, you  
23 know, information or threat information it might be getting.  
24 But it can, essentially, create -- it can create rules that  
25 will deal with lots of addresses. Indeed, that's like its

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10:38:22AM 1 main purpose, is to deal with network address-based rules.

10:38:31AM 2 THE COURT: In other words, it's designed to  
10:38:35AM 3 determine whether the address suggests a threat?

10:38:42AM 4 THE WITNESS: Yes.

10:38:45AM 5 THE COURT: Okay.

10:38:46AM 6 MR. HANNAH: Your Honor, at this time I'd like to  
10:38:48AM 7 show the doctor just one piece of source code. So if we  
10:38:51AM 8 could please seal the courtroom, mute the line, and Jonathan  
10:38:55AM 9 Rogers has left the room.

10 (Confidential testimony from Page 744, Line 10,  
11 through Page 747, Line 13, was redacted.)

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—Mitzenmacher, M. - Direct (Confidential Portion)—

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11 (Confidential testimony from Page 744, Line 10,  
12 through Page 747, Line 13, was redacted.)

13 \* \* \* \* \*

10:43:39AM 14 MR. HANNAH: I'd like to switch gears and go from  
10:43:42AM 15 the switches to the firewall, Your Honor.

10:43:39AM 16 BY MR. HANNAH:

10:43:44AM 17 Q. So, Doctor, if we could go to PTX-1289.

10:43:49AM 18 MR. HANNAH: PTX-1289 has been admitted into  
10:43:51AM 19 evidence.

10:43:51AM 20 BY MR. HANNAH:

10:43:56AM 21 Q. And, Doctor, I'd like to show you Page 1808.

10:44:07AM 22 So, Doctor, looking at where it says, "SIP  
10:44:10AM 23 keywords," and the following paragraph, Doctor, can you  
10:44:15AM 24 explain to the Court, now talking about the firewalls, how  
10:44:18AM 25 the firewalls will deal -- do the firewalls deal with SIP

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10:44:23AM 1 traffic, as required in the claims?

10:44:25AM 2 A. Yes. So they actually have some sort of analyzer that is

10:44:31AM 3 specific for Session Initiation Protocol traffic and, in

10:44:34AM 4 particular, will examine the various header information, such

10:44:38AM 5 as the IP address that we talked about before.

10:44:42AM 6 Q. And when it says, "Four SIP keywords allow you to monitor

10:44:49AM 7 SIP session traffic for exploits," what does that mean?

10:44:52AM 8 A. Again, I -- they're allowing -- or part of what the

10:44:58AM 9 management center's job is is to consider if there's, you

10:45:02AM 10 know, Session Initiation Protocol traffic that may lead to

10:45:07AM 11 exploits. And, again, through their processing, this may

10:45:11AM 12 lead to rules being sent down the line to the firewalls to

10:45:15AM 13 block certain specific types of traffic.

10:45:17AM 14 Q. Thank you, Doctor.

10:45:19AM 15 If we go to Page 1912 of this document and we look

10:45:23AM 16 at the top where it says, "Extracting the SIP header," can

10:45:33AM 17 you explain how this informs your opinion as to whether the

10:45:36AM 18 firewalls deal with the SIP information.

10:45:40AM 19 A. Right. So this says that it's looking at decoding and

10:45:45AM 20 analyzing SIP traffic. It extracts the SIP header and then

10:45:51AM 21 passes the extracted data to the rules engine for further

10:45:54AM 22 inspection. So this is going to be where there may be the

10:45:58AM 23 need to create or construct new rules if some of the Session

10:46:03AM 24 Initiation Protocol traffic is viewed as a threat.

10:46:06AM 25 So, as you can see below, it also says that it will

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10:46:10AM 1 generate events when the following conditions are detected;  
10:46:16AM 2 namely, anomalies and known vulnerabilities in SIP packets.  
10:46:21AM 3 Q. If we look a little bit lower in the document, it talks  
10:46:25AM 4 about the SIP pre-processor options, and it talks about the  
10:46:28AM 5 maximum URI length.  
10:46:34AM 6 Geoff, if you can take this down. It's a little bit  
10:46:37AM 7 lower in the document. Yeah.  
10:46:39AM 8 It says, "the maximum URI length." What is that  
10:46:43AM 9 showing, Doctor?  
10:46:44AM 10 A. That's certainly getting and considering the Session  
10:46:49AM 11 Initiation Protocol Uniform Resource Identifier, or URI, in  
10:46:54AM 12 its analysis and maybe looking at that in determining rules  
10:46:57AM 13 and behavior.  
10:46:58AM 14 Q. All right. Thank you, Doctor.  
10:47:07AM 15 Doctor, I'd like to show you some testimony. If we  
10:47:14AM 16 can look at --  
10:47:15AM 17 MR. HANNAH: This is in the binder, Your Honor, at  
10:47:17AM 18 PTX-1922. It's the deposition testimony of Hari Shankar.  
10:47:56AM 19 THE COURT: PTX-1922.  
10:47:59AM 20 MR. HANNAH: Correct, Your Honor.  
10:48:01AM 21 THE COURT: All right. Just a second. This is  
10:48:15AM 22 Shankar.  
10:48:16AM 23 MR. HANNAH: Yes. For the record, it's the  
10:48:18AM 24 December 11, 2019 deposition, and it's from Page 106, lines 8  
10:48:24AM 25 through 16.

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10:48:28AM 1 THE COURT: Okay.

10:48:29AM 2 BY MR. HANNAH:

10:48:29AM 3 Q. Doctor, can you explain --

10:48:32AM 4 THE COURT: Let me look at this a minute.

10:48:43AM 5 (There was a pause in the proceedings.)

10:48:43AM 6 THE COURT: Okay. I can actually understand that.

10:48:51AM 7 MR. HANNAH: And, as a reminder, Your Honor,

10:48:56AM 8 Mr. Shankar is the Cisco principal engineer.

10:48:59AM 9 THE COURT: Okay.

10:48:59AM 10 BY MR. HANNAH:

10:48:59AM 11 Q. So, Doctor, can you explain how this informed your

10:49:02AM 12 opinion as to whether the firewalls can analyze SIP traffic?

10:49:06AM 13 A. Yes. So, as the testimony discusses, the firewalls

10:49:16AM 14 handle SIP traffic, and they can block SIP traffic, as he

10:49:21AM 15 states. And, again, this tells me that you can create

10:49:24AM 16 functions and functionality that are designed for SIP

10:49:28AM 17 traffic.

10:49:28AM 18 Q. So if we turn back to the claims -- and just to bring

10:49:33AM 19 this home in terms of the SIP traffic, we talked about voice

10:49:38AM 20 phones and things like that. Does Zoom also -- can it also

10:49:41AM 21 use SIP traffic, as well?

10:49:43AM 22 A. Actually, I have to look it up. I imagine that it does,

10:49:50AM 23 but I admit, I haven't -- I'm sorry. I probably should know

10:50:00AM 24 that.

10:50:00AM 25 Q. Well, we'll look at the options, and I can assure you it

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1 does.

2           So if we look at the claim elements here, based on  
3 the evidence that you reviewed, does the Catalyst switches,  
4 the ASR routers, and the ISR routers -- does it meet the  
5 first "receive" element of claims 63 and 77?

6 A. Yes.

7 Q. And based on the documents that you reviewed and the  
8 testimony -- the product testing and the testimony, do the  
9 Firepower firewalls and the ASA firewalls -- do they meet the  
10 first "receive" element as shown in claims 63 and 77?

11 A. Yes, they do.

12 Q. Can we check that box?

13 A. Yes.

14 Q. All right. Let's look at the next claim element, which  
15 is receive packets associated with the network protected by  
16 the packet security gateway. Do you see that element?

17 A. Yes.

18 Q. And is that the same between claims 63 and 77?

19 A. Yes.

20 Q. Now, yesterday we saw a lot of documents about receiving  
21 packets from -- that the switches and routers can receive  
22 packets.

23           Do those documents inform your opinion as to whether  
24 this element is met for the switches and routers?

25 A. Yes. And, of course, I think as we discussed, routers

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10:51:10AM 1 and switches -- I believe their job is to receive packets.

10:51:14AM 2 Q. And do they receive packets with the network protected by

10:51:17AM 3 the packet security gateways; in this case, those switches

10:51:20AM 4 and routers?

10:51:21AM 5 A. Yes, they do. These are the packets that are being sent

10:51:25AM 6 from or going to devices in that network.

10:51:28AM 7 Q. And do the switches and routers -- do they provide

10:51:32AM 8 security functions, as based on the documents that we talked

10:51:36AM 9 about yesterday and earlier today?

10:51:37AM 10 A. Yes, they do.

10:51:38AM 11 Q. So can we say that the switches and routers meet the

10:51:42AM 12 receive-the-packet elements, based on all of the documents

10:51:45AM 13 we've reviewed to date and the testimony and the testing

10:51:49AM 14 you've done?

10:51:50AM 15 A. Yes, of course.

10:51:52AM 16 Q. Similarly with regard to the firewalls, do the firewalls

10:51:56AM 17 receive packets associated with the network protected by the

10:51:59AM 18 packet security gateway?

10:52:00AM 19 A. Yes, they do. That is also their main job.

10:52:03AM 20 Q. And is this based on documents that we've reviewed to

10:52:06AM 21 date and the testimony and the testing that you've done?

10:52:08AM 22 A. Yes, they are.

10:52:10AM 23 Q. And do the firewalls -- do they provide security services

10:52:15AM 24 in that they're a packet security gateway?

10:52:17AM 25 A. Yes, they do.



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10:52:18AM 1 Q. So based on all the evidence that you've seen and the  
10:52:21AM 2 documents we've reviewed, the testimony, and your testing, is  
10:52:24AM 3 it fair to say that the firewalls meet this element?

10:52:26AM 4 A. Yes.

10:52:26AM 5 Q. Can we check that box?

10:52:28AM 6 A. Please do.

10:52:30AM 7 Q. All right. Let's turn to the next element, which is the  
10:52:35AM 8 perform on a packet-by-packet basis at least one packet  
10:52:40AM 9 transformation. Do you see that, Doctor?

10:52:41AM 10 A. Yes, I do.

10:52:42AM 11 Q. What is required by this claim? And let's start with the  
10:52:45AM 12 switches and -- in terms of the switches and the routers.

10:52:48AM 13 A. So for the switches and the routers, when they get a  
10:52:52AM 14 packet, one of the main things that they have to do is decide  
10:52:58AM 15 whether they're going to drop the packet or forward the  
10:53:00AM 16 packet, and each of those are packet transformation  
10:53:04AM 17 functions, so they're either determining that the packet has  
10:53:08AM 18 to be dropped or determining where exactly it will route the  
10:53:15AM 19 packet.

10:53:15AM 20 THE COURT: So, in other words, the term  
10:53:18AM 21 "transformation function" means the operating system will  
10:53:23AM 22 decide whether to drop them or forward them?

10:53:28AM 23 THE WITNESS: That's what I'm saying here. There  
10:53:31AM 24 are certainly other packet transformation functions that  
10:53:34AM 25 might do some sort of monitoring. It might do, you know,

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10:53:37AM 1 feeding back information into other parts of the system, but,  
10:53:42AM 2 at the very least, what we know is that certainly for every  
10:53:45AM 3 packet it's deciding whether to forward or drop them.

10:53:48AM 4 THE COURT: So that's just one of the functions that  
10:53:55AM 5 traffic -- that packet transformation encompasses?

10:54:00AM 6 THE WITNESS: Yes, sir.

10:54:03AM 7 THE COURT: All right.

10:54:04AM 8 BY MR. HANNAH:

10:54:04AM 9 Q. Let's turn to PTX-1276, which has been admitted -- yes,  
10:54:10AM 10 admitted into evidence.

10:54:11AM 11 And this is -- can you just briefly remind us what  
10:54:17AM 12 this document is?

10:54:17AM 13 A. This is one of the documents describing the operating  
10:54:22AM 14 system for the switches and routers.

10:54:23AM 15 Q. We looked at this document a lot yesterday, but if we can  
10:54:28AM 16 just quickly turn to Page 216 --

10:54:31AM 17 MR. HANNAH: Which ends in corresponding Bates  
10:54:33AM 18 number 0216, Your Honor.

10:54:33AM 19 BY MR. HANNAH:

10:54:38AM 20 Q. -- Doctor, does this show a packet transformation  
10:54:41AM 21 function that can be performed by the switches and routers?

10:54:43AM 22 A. Yes, it does. So, in particular, the packet will come  
10:54:47AM 23 in, there are various situations where it may be dropped,  
10:54:50AM 24 and, otherwise, also a forwarding lookup is done to determine  
10:54:55AM 25 where to forward the packet, if it needs to be forwarded.

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1 Q. Thank you, Doctor.

2 Now let's switch gears and turn to the firewalls.

3 If we look at PTX-1393, which has already been admitted into  
4 evidence, if we turn to Page -- Doctor, can you remind us,  
5 what is this document, briefly?

6 A. This is a document that's called Lamplighter. And,  
7 again, Lamplighter is, I guess, one of the code names for the  
8 Threat Intelligence Director.

9 Q. If you can turn to Page 9 of this document, can you  
10 explain how this document informs your opinion as to whether  
11 the firewalls perform a packet transformation function?

12 A. Sure.

13 Q. Looking at the particular actions of "block" in both.

14 A. Right. So the firewalls will do various actions. They  
15 can sometimes just forward the packet, let it through, but  
16 they can also block packets or ask for packets to be included  
17 in the monitoring.

18 Q. And so if we turn back to the claims, Doctor, based on  
19 these two documents that we reviewed but also on all the  
20 documents that you've reviewed for the past couple days, is  
21 it your opinion that the switches and routers perform on the  
22 packets, on a packet-by-packet basis, at least one packet  
23 transformation function of multiple packet transformation  
24 functions specified by the dynamic security policy?

25 A. Yes.

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1 Q. And is it also true, based on the documents that you  
2 reviewed just now but also in the previous couple days, that  
3 the firewalls also meet this claim element for both 63 and  
4 claim 77?

5 A. Yes.

6 Q. Can we check that box?

7 A. Yes.

8 Q. Let's talk about the next element, which is the  
9 "encapsulate" element.

10 Can you, please, explain what this element means  
11 and, in particular, what does it mean to encapsulate?

12 A. So sometimes in these systems a packet will be headed  
13 towards one destination and, essentially, there's going to  
14 need to be, for possibly a variety of reasons, sort of a  
15 detour, and so when there's a detour, or, you know, say sort  
16 of a path that needs to be taken that is not on the normal  
17 route.

18 And so there's a process for this known as  
19 encapsulation, and the idea is that you can take your packet,  
20 which has a header saying, this is where the packet is  
21 supposed to go, and you add an additional header. So you're  
22 encapsulating your packet inside what looks, you know, to be  
23 a bigger packet or with a different header, which gives it  
24 the destination of that detour; it says, go to this place  
25 first.

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1 And there are a variety of reasons why you might  
2 want to set up a system to do this. Often it's used for  
3 various securities; that you might have an address where you  
4 tell people to send things, you know, but it's actually sort  
5 of a fake address that's kept secure, and then once the  
6 packet arrives, you send it on through this encapsulation so  
7 it can actually reach its final address. So once it hits an  
8 intermediate point, it is sort of rerouted to make sure it  
9 can get to its final address safely.

10 Q. And, Doctor, I believe in the next slide we have an  
11 animation for this.

12 THE COURT: Let me ask a question here.

13 In the past, in the previous claim language, we used  
14 the term "packet transformation," which can include a number  
15 of different functions. Is the word "encapsulate," as it's  
16 used in this claim provision -- is that the only thing it  
17 means; it's sent to an intermediate address before it reaches  
18 its intended address, initially intended address? Is that  
19 the only thing "encapsulate" means?

20 THE WITNESS: Yeah. I think if you read -- and I've  
21 tried to avoid reading the whole claim element just because  
22 it's long, but I think the claim element really sort of  
23 explains that. So it says --

24 THE COURT: Well, that's what it seems to say.

25 THE WITNESS: Yeah, I agree. So I can certainly

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10:59:55AM 1 read it and discuss it in that way.

10:59:57AM 2 It says, "Encapsulate at least one packet of the  
10:59:59AM 3 packets that fall within the set of network addresses that  
11:00:02AM 4 matches the SIP URI, with a header" -- right, so it's  
11:00:07AM 5 encapsulating, it's giving it a new header -- "containing a  
11:00:11AM 6 network address that is different from a destination address  
11:00:15AM 7 specified by at least one packet..."

11:00:17AM 8 So it's saying, we're going to put on a new header  
11:00:20AM 9 and, essentially, give it a sort of temporary other  
11:00:24AM 10 destination address.

11:00:26AM 11 "...and that corresponds to a network device  
11:00:31AM 12 configured to copy information contained in the at least one  
11:00:35AM 13 packet and to forward the at least one packet to the  
11:00:37AM 14 destination network address."

11:00:39AM 15 So it's going to be going to this intermediate  
11:00:42AM 16 point, where there may be some sort of, you know, other check  
11:00:44AM 17 or possibly security setup or just monitoring, and then, as  
11:00:49AM 18 we see in the following claim element, it will actually, you  
11:00:53AM 19 know, take off that outer header, take off that intermediate  
11:00:58AM 20 header, and then route it to where it's supposed to go, to  
11:01:01AM 21 the actual network address.

11:01:05AM 22 THE COURT: Okay.

11:01:07AM 23 BY MR. HANNAH:

11:01:08AM 24 Q. And so if we could just show the demonstrative real  
11:01:11AM 25 quick, this might be a nice visual.

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11:01:14AM 1 But can you just explain what's being shown here,  
11:01:17AM 2 Doctor, what it's supposed to be in terms of animation?

11:01:22AM 3 A. So the idea -- I think it's sort of a funny way of  
11:01:24AM 4 putting it, but it's like you're sending a box, and it gets  
11:01:27AM 5 to some point in the middle, and you end up putting it in a  
11:01:31AM 6 bigger box and sending it, you know, off somewhere else,  
11:01:31AM 7 right?

11:01:34AM 8 So you can think of the original box having a label  
11:01:39AM 9 telling you where something is going to go, but you're going  
11:01:41AM 10 to do some intermediate processing, so you're going to put  
11:01:45AM 11 that box inside another box and send it off somewhere  
11:01:50AM 12 slightly different.

11:01:51AM 13 THE COURT: Suppose it's encrypted?

11:01:54AM 14 THE WITNESS: Even if the inside is encrypted, the  
11:01:59AM 15 header information about where it's supposed to go, that part  
11:02:03AM 16 isn't encrypted, so you can still know where the destination  
11:02:07AM 17 address is supposed to go.

11:02:08AM 18 THE COURT: All right. So, really, you're just  
11:02:11AM 19 checking out the address here?

11:02:13AM 20 THE WITNESS: In the encapsulation part, you're  
11:02:16AM 21 giving it a new address. And you're actually right. Like  
11:02:20AM 22 one of the things that you may be doing is sending the packet  
11:02:23AM 23 to some other place, where you might be trying to decrypt it,  
11:02:28AM 24 or you might be trying to at least monitor and say, Aha, this  
11:02:32AM 25 is how many encrypted packets I've gotten. It may be that

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11:02:37AM 1 those are the sorts of things you might conceivably check  
11:02:40AM 2 when you're doing this encapsulation.  
11:02:42AM 3 THE COURT: All right.  
11:02:44AM 4 BY MR. HANNAH:  
11:02:44AM 5 Q. If we go to PTX-1262, which has been admitted into  
11:02:48AM 6 evidence, and, Doctor, if you could just briefly remind the  
11:02:53AM 7 Court what this document is.  
11:02:54AM 8 A. This is just a document describing the functionalities of  
11:03:00AM 9 the switches under consideration here.  
11:03:01AM 10 Q. If we can go to the document ending with Bates label  
11:03:08AM 11 1994 --  
11:03:09AM 12 THE COURT: Are we looking at 1262 now?  
11:03:12AM 13 MR. HANNAH: Yeah, 1262, Your Honor. It's Page 72,  
11:03:16AM 14 but it ends in Bates number 994.  
11:03:23AM 15 THE COURT: Wait a minute. I haven't gotten to 1262  
11:03:27AM 16 yet.  
11:03:30AM 17 All right.  
11:03:30AM 18 BY MR. HANNAH:  
11:03:31AM 19 Q. If we look at the third paragraph, Doctor --  
11:03:35AM 20 THE COURT: Has this been admitted before?  
11:03:38AM 21 MR. HANNAH: It has, Your Honor. 1262 has been  
11:03:40AM 22 admitted.  
11:03:41AM 23 THE COURT: 1262, and the Bates number is --  
11:03:44AM 24 MR. HANNAH: 994.  
11:03:49AM 25 THE COURT: Okay.



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11:03:49AM 1 BY MR. HANNAH:

11:03:50AM 2 Q. Doctor, can you explain how this paragraph supports your  
11:03:52AM 3 opinion as to whether the Catalyst switches perform  
11:03:56AM 4 encapsulation?

11:03:58AM 5 A. All right. So the Cisco UADP ASIC -- so let's just  
11:04:05AM 6 remember the UADP stands for Unified Access Data Plane, and  
11:04:12AM 7 the ASIC is an Application-Specific Integrated Circuit.  
11:04:18AM 8 That's like the processor or chip are a big part of these  
11:04:23AM 9 routers and switches that does the matching and determining  
11:04:28AM 10 what to do with the packets.

11:04:30AM 11 And one of the things it says is that it  
11:04:33AM 12 "...combines the flexibility needed to address new and  
11:04:35AM 13 emerging networking protocols and encapsulations." So, you  
11:04:41AM 14 know, this is just one of the places that tells me that these  
11:04:46AM 15 routers and switches will encapsulate packets when it's part  
11:04:51AM 16 of the processing.

11:04:54AM 17 Q. Doctor, if we could go to PTX-524. And, Doctor, can you  
11:04:59AM 18 explain -- this has not been admitted into evidence, so,  
11:05:02AM 19 Doctor, can you, please, explain what this document is?

11:05:04AM 20 A. Sure. So, again, this is for the Cisco 4000 ISR, so this  
11:05:16AM 21 is, again, part of the routers, one of the router families  
11:05:20AM 22 under consideration here.

11:05:20AM 23 Q. Doctor --

11:05:22AM 24 MR. HANNAH: I mean, Your Honor, can we, please,  
11:05:24AM 25 move PTX-524 -- we'd like to move PTX-524 into evidence,

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11:05:29AM 1 please.

11:05:30AM 2 THE COURT: All right.

11:05:30AM 3 (Plaintiff's Exhibit PTX-524 was received in  
11:05:30AM 4 evidence.)

11:05:30AM 5 THE COURT: Now, this is -- is this one of the  
11:05:37AM 6 accused products?

11:05:39AM 7 MR. HANNAH: Yes, Your Honor.

11:05:41AM 8 THE WITNESS: Yes.

11:05:41AM 9 THE COURT: This is the 4000 series.

11:05:44AM 10 THE WITNESS: And it's a data sheet document, so it  
11:05:46AM 11 will describe features of the product.

11:05:59AM 12 THE COURT: People call this an ISR.

11:06:02AM 13 THE WITNESS: ISR.

11:06:08AM 14 THE COURT: Integrated Services Router. And tell me  
11:06:20AM 15 what it does, now.

11:06:22AM 16 BY MR. HANNAH:

11:06:23AM 17 Q. If we go to Page 9 of this document, and then, yes, we  
11:06:30AM 18 highlight that box, how does this inform your opinion as to  
11:06:33AM 19 whether the Integrated Services Router or the ISR routers  
11:06:36AM 20 meet this claim, this encapsulation element?

11:06:39AM 21 A. Right. So this is describing the feature of the  
11:06:44AM 22 software, what the software does, and one of the things that  
11:06:47AM 23 the routers will do is do encapsulation, and this is just  
11:06:53AM 24 giving some of the protocols and methodologies that it uses  
11:06:58AM 25 when doing encapsulation.

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11:06:59AM 1 Q. And does -- based on your review of the documents and  
11:07:06AM 2 testimony in this case, do all of the ISR routers or all of  
11:07:09AM 3 the Integrated Services Routers that are accused of  
11:07:13AM 4 infringement also perform this same type of encapsulation  
11:07:17AM 5 shown here?

11:07:17AM 6 A. Yes.

11:07:17AM 7 Q. All right, Doctor. I'd like to turn your attention to  
11:07:22AM 8 PTX-1229, which has not been admitted into evidence.

11:07:28AM 9 Doctor, can you, please, explain what's being shown  
11:07:31AM 10 here?

11:07:31AM 11 A. This is similarly -- I guess it's a brochure. It's a  
11:07:36AM 12 document describing this is the Aggregation Services Router,  
11:07:40AM 13 the ASRs, the other family of router accused products, and  
11:07:46AM 14 describes the functionalities of these systems.

11:07:51AM 15 Q. And, Doctor, is this brochure indicative of all of the  
11:07:59AM 16 accused ASR, or Aggregated Services Routers, that have been  
11:08:02AM 17 accused of infringement?

11:08:04AM 18 A. Yes. It talks about the Cisco ASR 1000 series, so yeah.

11:08:10AM 19 MR. HANNAH: Your Honor, at this point we'd like to  
11:08:13AM 20 move PTX-1229 into evidence, please.

11:08:22AM 21 THE COURT: Okay. PTX-1229 is admitted.

11:08:25AM 22 (Plaintiff's Exhibit PTX-1229 was received in  
11:08:25AM 23 evidence.)

11:08:25AM 24 MR. HANNAH: Thank you, Your Honor.

11:08:26AM 25 BY MR. HANNAH:

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11:08:26AM 1 Q. So, Doctor, if we could go to Page 5 of this document --

11:08:30AM 2 MR. HANNAH: And for Your Honor, it ends in Bates

11:08:33AM 3 label 669.

11:08:33AM 4 BY MR. HANNAH:

11:08:35AM 5 Q. If we go to the second paragraph, Doctor, how does it

11:08:42AM 6 inform your opinion as to whether the ASR, or the Aggregation

11:08:47AM 7 Services Routers, perform encapsulation, as required by the

11:08:49AM 8 claims?

11:08:49AM 9 A. Sure. So if more detailed traffic analysis is needed,

11:08:54AM 10 the Cisco ASR 1000 series router supports up to 1,024

11:09:00AM 11 encapsulated remote switched port analyzer sessions. ERSPAN

11:09:08AM 12 allows traffic on a switch port to be replicated and tunneled

11:09:14AM 13 to another location to aid in advanced troubleshooting,

11:09:17AM 14 security analysis, compliance verification, are primary

11:09:20AM 15 purposes. And, again, this is showing that encapsulation is

11:09:22AM 16 part of the underlying capabilities of the routers.

11:09:29AM 17 Q. Doctor, I'd like to switch gears and go to the firewalls.

11:09:35AM 18 If we go to PTX-1293, which has already been admitted into

11:09:40AM 19 evidence, Doctor, can you just briefly remind the Court what

11:09:49AM 20 is this document and what's being shown here?

11:09:50AM 21 A. This is a configuration guide for the ASA series, so,

11:09:55AM 22 again, it's just describing how the devices can be set up.

11:09:59AM 23 Q. And is it your understanding that this describes the

11:10:02AM 24 operation or is consistent with the operation for all the

11:10:06AM 25 accused firewalls, the ASA and the Firepower firewalls?

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11:10:09AM 1 A. Yes.

11:10:10AM 2 Q. Doctor, I'd like to turn your attention to Page 62 of  
11:10:15AM 3 this document, which shares the same Bates number of 62 and,  
11:10:22AM 4 in particular, if we look in the VPN functional overview.

11:10:28AM 5 Doctor, can you explain your opinion as to how this  
11:10:32AM 6 informed your opinion as to whether these firewalls meet the  
11:10:36AM 7 encapsulation element as specified by the claims?

11:10:38AM 8 A. Yeah. So one of the main uses for encapsulation is  
11:10:46AM 9 something called tunneling. So, again, as it points out  
11:10:51AM 10 here, tunneling is used for security. If there's a secure  
11:11:00AM 11 connection, it's called a tunnel, and, as it points out, the  
11:11:04AM 12 firewalls use tunneling protocols to negotiate security  
11:11:08AM 13 parameters, create and manage tunnels, encapsulate packets,  
11:11:13AM 14 transmit or receive them through the tunnel and unencapsulate  
11:11:17AM 15 them.

11:11:19AM 16 The ASA functions as a bi-directional tunnel  
11:11:24AM 17 endpoint, so this, again, gets to one of the main uses and  
11:11:30AM 18 fits with the claim language, including the next claim  
11:11:35AM 19 element we'll see below. It can receive plain packets,  
11:11:39AM 20 encapsulate them, send them to the other end of the tunnel,  
11:11:42AM 21 where they are unencapsulated and sent to their final  
11:11:45AM 22 destination.

11:11:45AM 23 So, again, one of the main uses of encapsulation is  
11:11:58AM 24 tunneling, and this is described, you know, in the language  
11:12:04AM 25 used for the firewall, and it's lined up with the language I

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11:12:08AM 1 think we've seen in the claim elements.

11:12:10AM 2 Q. Thank you, Doctor.

11:12:11AM 3 If we go back to the claim, the claims specify --  
11:12:17AM 4 they say that it encapsulates at least one packet of the  
11:12:20AM 5 packets that fall within the set of network addresses and  
11:12:23AM 6 matches the SIP URI.

11:12:26AM 7 Do you see that, Doctor?

11:12:27AM 8 A. Yes.

11:12:28AM 9 Q. And based on the documents that we've previously reviewed  
11:12:31AM 10 with the SIP URI, can you, please, explain how that -- how  
11:12:36AM 11 those documents support that this element is met by this  
11:12:40AM 12 encapsulation element?

11:12:42AM 13 A. Yeah. So, as we noted in all of the systems, I guess  
11:12:48AM 14 encapsulation in particular, you would have encapsulation,  
11:12:53AM 15 and for packets that are forwarded according to matching  
11:12:59AM 16 these sorts of rules, they could match the rules as described  
11:13:04AM 17 in the claim element and then potentially encapsulate it as  
11:13:07AM 18 it gets to its final destination.

11:13:09AM 19 Q. Based on all of the documents that you've seen today and  
11:13:14AM 20 previously, do the switches and routers -- do they meet the  
11:13:18AM 21 "encapsulate" element of claims 63 and 77?

11:13:21AM 22 A. Yes.

11:13:22AM 23 Q. And, based on all the documents you've reviewed,  
11:13:27AM 24 including from today and the previous days, do the firewalls  
11:13:31AM 25 meet the "encapsulate" element of claims 63 and 77?

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11:13:35AM 1 A. Yes.

11:13:36AM 2 Q. Can we check that box?

11:13:38AM 3 A. Yes.

11:13:38AM 4 Q. All right. Let's turn to the last element, which is

11:13:42AM 5 routing, the "route" element. Can you explain what is

11:13:44AM 6 required by that element?

11:13:45AM 7 A. So it says, "Route based on the header, be at least one

11:13:52AM 8 packet to the network address that is different from the

11:13:57AM 9 destination network address." So this is just saying, I

11:14:01AM 10 think, like we said before, that you're -- after the

11:14:06AM 11 encapsulation, you're sending this to sort of a different

11:14:10AM 12 network address.

11:14:12AM 13 Q. All right. Doctor, I'd like to show you PTX-422, which

11:14:18AM 14 has not been admitted into evidence.

11:14:24AM 15 Doctor, what is PTX-422?

11:14:26AM 16 A. This is -- it's called the LAN Switching Configuration

11:14:31AM 17 Guide, so this is discussing, again, how some of the switches

11:14:35AM 18 would work inside the network.

11:14:44AM 19 Q. And if we turn to Page 5 of this document, which is

11:14:47AM 20 actually Page 15 of this document that ends in Bates label --

11:14:50AM 21 I believe it's 437.

11:14:55AM 22 Can you, please, explain what is being shown here in

11:14:59AM 23 the figure and in the paragraph before it?

11:15:07AM 24 A. Right. So this is using sort of an encapsulation

11:15:12AM 25 methodology that's used in the Cisco switches -- I think it's

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11:15:17AM 1 called the ERSPAN protocol -- and it says it will forward the  
11:15:25AM 2 traffic using the routable GRE-encapsulated packets to the  
11:15:32AM 3 ERSPAN destination session, and then the ERSPAN destination  
11:15:37AM 4 session switches the traffic to the destination ports.

11:15:40AM 5           So, again, this is sort of pointing out that instead  
11:15:44AM 6 of being routed to the original destination address, it will  
11:15:48AM 7 be routed to this intermediary point, where it might undergo  
11:15:54AM 8 various sorts of analysis, and then eventually it will --  
11:16:02AM 9 that traffic will still be switched out according to the  
11:16:05AM 10 appropriate destination.

11:16:08AM 11 Q. And, Doctor, before we looked at PTX-1262, which talked  
11:16:11AM 12 about the encapsulation for the switches -- I mean, for  
11:16:19AM 13 the -- for the switches, is this the same encapsulation that  
11:16:22AM 14 they're talking about in this document?

11:16:24AM 15 A. That would be one of the encapsulations, yeah. They talk  
11:16:27AM 16 about a couple in there.

11:16:28AM 17 Q. And then we also talked about in the -- for the routers  
11:16:32AM 18 they talked about the different encapsulation that is being  
11:16:35AM 19 performed.

11:16:37AM 20           Is this the same encapsulation? Can you explain how  
11:16:41AM 21 encapsulation works for the routers?

11:16:43AM 22 A. It works similarly; that they use the same operating  
11:16:47AM 23 system. So they have, you know, some of the same power  
11:16:52AM 24 capabilities with regard to encapsulation.

11:16:54AM 25 Q. Would that include --



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11:16:57AM 1 THE COURT: Sometime in this process of  
11:17:08AM 2 encapsulation, after it goes to the different address, can it  
11:17:18AM 3 be dropped? Is that one of the alternatives? Or does it --  
11:17:25AM 4 why would you encapsulate it if you couldn't drop it?

11:17:30AM 5 THE WITNESS: So I suppose there's always the  
11:17:34AM 6 possibility that some other security rule might cause it to  
11:17:37AM 7 drop.

11:17:38AM 8 Generally, when you're rerouting it, it's because  
11:17:40AM 9 you want to keep private some information about, like, the  
11:17:45AM 10 connection or the structure of your network, or it might be  
11:17:50AM 11 that it sort of is allowing a way in that you don't want  
11:17:56AM 12 others to see you have access to. Or, alternatively, like  
11:17:59AM 13 you're just doing some sort of monitoring, like you want to  
11:18:04AM 14 send it to something for inspection, but you're not keeping  
11:18:07AM 15 it from reaching its final destination. It might be part of  
11:18:11AM 16 the process that is eventually coming up with new rules, if  
11:18:13AM 17 you discover something is wrong.

11:18:17AM 18 THE COURT: Well, what -- well, suppose it was  
11:18:20AM 19 encrypted. The only thing that you would know about it was  
11:18:24AM 20 the source and the destination.

11:18:29AM 21 THE WITNESS: So you'd probably have other  
11:18:32AM 22 information, additional information, in the header field, and  
11:18:34AM 23 you could correlate it -- potentially, if you were gathering  
11:18:38AM 24 that information, you might correlate it against other  
11:18:41AM 25 packets to see if it was problematic, even if you couldn't

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11:18:50AM 1 peek inside.

11:18:51AM 2 I get the feeling that Dr. Cole may be talking a lot  
11:18:55AM 3 about that in the coming days.

11:18:59AM 4 THE COURT: Okay.

11:19:00AM 5 BY MR. HANNAH:

11:19:00AM 6 Q. Doctor, I'd like to switch gears and go back to the  
11:19:03AM 7 firewall now. And if we could turn back to PTX-1293 and, in  
11:19:10AM 8 particular, Page 62, where we were talking about the VPN  
11:19:14AM 9 functionality.

11:19:15AM 10 Can you explain how this also shows that the last  
11:19:19AM 11 element is met by the firewalls, in particular the routing  
11:19:23AM 12 element?

11:19:23AM 13 A. Sure. So, in particular, this shows that --

11:19:26AM 14 THE COURT: Wait a minute.

11:19:29AM 15 THE WITNESS: Sorry.

11:19:31AM 16 MR. HANNAH: PTX-1293, Your Honor, which has been  
11:19:36AM 17 admitted.

11:19:37AM 18 THE COURT: Sorry. I thought you said 1292, and I  
11:19:40AM 19 couldn't find it. 1293. This has already been admitted.

11:19:45AM 20 All right, go ahead.

11:19:47AM 21 BY MR. HANNAH:

11:19:47AM 22 Q. So, Doctor, can you, please, explain how this informed  
11:19:51AM 23 your opinion with regard to the routing element for the  
11:19:54AM 24 firewalls.

11:19:57AM 25 A. So, as this says, or as we went over before, it can use

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11:20:03AM 1 this tunnel encapsulation to encapsulate a packet and then  
11:20:09AM 2 send it to this other destination that it's supposed to go  
11:20:13AM 3 to. And then, you know, also as a matter, it also then can  
11:20:19AM 4 be unencapsulated and then forwarded to a final destination,  
11:20:22AM 5 as well. And, again, this matches the claim language.  
11:20:27AM 6 Q. All right. Thank you, Doctor.  
11:20:31AM 7 So we turn back to the claims. Based on the  
11:20:33AM 8 documents that you reviewed and the documents that we  
11:20:35AM 9 reviewed in the last couple of days, the deposition  
11:20:38AM 10 testimony, your testing, the source code, is it your opinion  
11:20:40AM 11 that the switches and routers will route based on the header,  
11:20:46AM 12 as required for claim 63 and claim 77 of the '205 patent?  
11:20:53AM 13 A. Yes.  
11:20:54AM 14 Q. And is it your opinion, based on the documents you  
11:20:57AM 15 reviewed today and over the last couple days, deposition  
11:21:00AM 16 testimony, your testing, the source code, that the firewalls  
11:21:04AM 17 will also route based on the header, as recited in claims 63  
11:21:08AM 18 and 77 of the '205 patent?  
11:21:11AM 19 A. Yes.  
11:21:11AM 20 Q. Was that a "Yes"? I couldn't --  
11:21:13AM 21 A. I'm sorry. Yes.  
11:21:15AM 22 Q. Thank you, Doctor. So let's go over -- can we check that  
11:21:18AM 23 box?  
11:21:18AM 24 A. Yes.  
11:21:18AM 25 Q. Let's go over a brief recap of your opinion with regard

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1 to the '205 patent.

2 Can you, please, explain -- just give us a recap in  
3 terms of your infringement opinion for the '205 patent for  
4 claims 63 and 77.

5 A. Yes. So the Digital Network Architecture switches and  
6 routers are a system that provide the network security, in  
7 particular the functionalities that are described.

8 In particular, the Digital Network Architecture  
9 constitutes a security policy management server that  
10 distributes rules to the routers and switches, and these  
11 rules can contain network addresses and SIP information, such  
12 as the IP addresses which correspond to a SIP URI.

13 The switches and routers encapsulate packets that  
14 can match network addresses and the SIP information in the  
15 rules, and they could lead to it going through a tunnel to  
16 secure the network communication, and then the packets will  
17 be routed through the tunnel before being sent to their final  
18 destination.

19 Q. Thank you, Doctor.

20 If we go to the recap for the firewalls, can you,  
21 please, just give us a brief recap of your opinion with  
22 regard to the '205 patent.

23 A. And the firewalls act in a similar manner. Certainly,  
24 the Firepower Management Center is actually a security  
25 management server, a security policy management server, that

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1 will distribute rules to the firewalls, that can contain  
2 network addresses and SIP information, as described.

3 They -- the firewalls can also encapsulate packets,  
4 through things such as tunneling, to secure the network  
5 communication, and the packets will be routed through the  
6 tunnel and then to their final destination.

7 Q. Thank you, Doctor.

8 MR. HANNAH: And, Your Honor, I just want to confirm  
9 that we admitted PTX-422 into evidence.

10 THE COURT: PTX-422? I don't have it admitted, but  
11 I will now.

12 MR. HANNAH: This was the one that we were talking  
13 about with the LAN Switch Configuration Guide. It had the  
14 figure of the routed network. I apologize. I forgot to  
15 admit that or request for that to be admitted.

16 THE COURT: All right.

17 (Plaintiff's Exhibit PTX-422 was received in  
18 evidence.)

19 MR. HANNAH: 422.

20 THE COURT: Did we admit 1922?

21 MR. HANNAH: Yes, we would like to admit 1922.

22 THE COURT: We'll also admit 1922.

23 (Plaintiff's Exhibit PTX-1922 was received in  
24 evidence.)

25 MR. HANNAH: Thank you, Your Honor.

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11:24:26AM 1 BY MR. HANNAH:

11:24:27AM 2 Q. Doctor, I'd like to turn your attention to the next

11:24:31AM 3 slide, which is the doctrine of equivalents, and could you

11:24:35AM 4 please explain to the Court your opinion with regards to the

11:24:38AM 5 doctrine of equivalents for the '205 patent?

11:24:40AM 6 A. Sure. I believe one of the arguments being made on the

11:24:44AM 7 other side is regarding how the SIP URI is labeled or

11:24:54AM 8 formatted in the context of the rules or the context of the

11:24:56AM 9 system. I believe there's literal infringement, you know,

11:24:59AM 10 but to the extent that it's not literal infringement with

11:25:04AM 11 regard to the SIP URI claim element, I would say that you

11:25:10AM 12 have substantially the same functions, substantially the same

11:25:17AM 13 way, with substantially the same results, regarding rules

11:25:20AM 14 containing SIP URI.

11:25:23AM 15 Q. And, just to be clear, this is both -- and all the DOE

11:25:24AM 16 that we've talked about before is for the routers, the

11:25:25AM 17 switches, and the firewalls; is that correct?

11:25:26AM 18 A. Yes, this would apply to both.

11:25:29AM 19 Q. Both categories, I should say.

11:25:31AM 20 A. Both categories.

11:25:32AM 21 Q. Switches, routers, and firewalls. Okay.

11:25:34AM 22 A. Yes.

11:25:35AM 23 Q. So, go ahead. Can you, please, explain for the Court how

11:25:38AM 24 the switches, routers, and firewalls perform substantially

11:25:42AM 25 the same function.

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11:25:45AM 1 A. Certainly. So it provides substantially the same  
11:25:49AM 2 function, which is to block potentially malicious network  
11:25:55AM 3 traffic that's been determined or related to a Session  
11:26:01AM 4 Initiation Protocol URI. It does this in the same way; by  
11:26:08AM 5 specifying a rule that would block this corresponding  
11:26:12AM 6 traffic. It may do so -- it does so by establishing a rule  
11:26:18AM 7 containing relevant SIP information, such as a domain or an  
11:26:25AM 8 IP address, and it achieves substantially the same result,  
11:26:28AM 9 which is to block that potentially -- or create rules which  
11:26:34AM 10 would either block or monitor, or whatever action you want to  
11:26:37AM 11 take, on the corresponding Session Initiation Protocol  
11:26:43AM 12 traffic.

11:26:47AM 13 MR. HANNAH: Your Honor, unless you have any  
11:26:49AM 14 questions, we can -- we have no further questions and can  
11:26:54AM 15 tender the witness.

11:26:55AM 16 THE COURT: Okay. We'll take our morning recess  
11:27:00AM 17 until 11:45.

11:39:48AM 18 (There was a recess from 11:27 a.m. to 11:47 a.m.)

11:47:32AM 19 THE COURT: All right, you may proceed with  
11:47:35AM 20 cross-examination.

11:47:38AM 21 CROSS-EXAMINATION

11:47:38AM 22 BY MR. GAUDET:

11:47:39AM 23 Q. Thank you, Your Honor.

11:47:39AM 24 And good morning, Dr. Mitzenmacher. I'm Matt  
11:47:44AM 25 Gaudet, for Cisco Systems. We're going to start with the

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11:47:46AM 1 '193 patent. That was the same patent that you started with,  
11:47:50AM 2 okay?

11:47:50AM 3 A. All right.

11:47:51AM 4 Q. And I'll ask Mr. Simons to pull up the claim language of  
11:47:56AM 5 claim 18 on this slide.

11:47:58AM 6 So do you see what I did? This is the claim  
11:48:01AM 7 language, but I broke it up, and I put some letters to  
11:48:05AM 8 annotate it, just so that when I refer to an element, you'll  
11:48:09AM 9 be able to follow what element I'm referring to.

11:48:11AM 10 Are you comfortable testifying with these markings?

11:48:15AM 11 A. I will try.

11:48:18AM 12 Q. Okay. If you get confused, you just tell me, okay?

11:48:21AM 13 A. All right.

11:48:21AM 14 Q. Okay. Now, let's just get oriented.

11:48:25AM 15 So the element -- the four things we have titled  
11:48:30AM 16 here are that the '193 patent -- and this is the exfiltration  
11:48:35AM 17 patent, right?

11:48:35AM 18 A. Yes.

11:48:37AM 19 Q. Okay. The first few elements are a system that's got a  
11:48:42AM 20 processor and a memory. And again, just for context, you're  
11:48:45AM 21 saying that's the router or the switch, correct?

11:48:47AM 22 A. Yes, that would be correct.

11:48:49AM 23 Q. Okay. And then in element B, that router or switch has  
11:48:53AM 24 to receive -- and we'll highlight the word "receive" -- from  
11:48:59AM 25 a computing device a plurality of packets. Do you see that?



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11:49:04AM 1 A. Yes.

11:49:04AM 2 Q. And, according to you, the computing device -- that's the

11:49:08AM 3 computer inside of a network that has been infected with an

11:49:11AM 4 exfiltration; is that right?

11:49:12AM 5 A. That could be one of the ways that it meets, yes.

11:49:18AM 6 Q. So it's sending packets to the router or switch, correct?

11:49:22AM 7 A. That could be one of the ways that it meets the --

11:49:24AM 8 Q. Okay. Then element C. Now, the router or switch has to

11:49:31AM 9 apply a packet-filtering rule to those packets, right?

11:49:34AM 10 A. Yes.

11:49:34AM 11 Q. Okay. Let's go ahead and highlight that language.

11:49:38AM 12 And --

11:49:42AM 13 THE COURT: Hold on just a second.

11:49:45AM 14 MR. GAUDET: Yes, Your Honor.

11:50:05AM 15 (There was a pause in the proceedings.)

11:50:05AM 16 THE COURT: All right.

11:50:06AM 17 BY MR. GAUDET:

11:50:07AM 18 Q. Okay. And so we highlighted in element C here that

11:50:11AM 19 there's a packet-filtering rule. You see that, right?

11:50:15AM 20 And it says a particular type of packet-filtering

11:50:18AM 21 rule that's got various criteria. Do you see that, as well?

11:50:22AM 22 A. Yes. I mean, it talks about criteria.

11:50:24AM 23 Q. Okay. Now, in your opinion, the packet-filtering rule is

11:50:29AM 24 the quarantine rule that has been issued by the human network

11:50:35AM 25 administrator, correct?

~~Mitzenmacher, M. - Cross~~

11:50:36AM 1 A. So it would be -- like, when we talk about the quarantine  
11:50:42AM 2 rule, there's sort of various aspects. So this is sort of a  
11:50:47AM 3 combination of the determination of the labeling by the  
11:50:52AM 4 security tag but also corresponding the filtering part of the  
11:50:56AM 5 rule. The packet filtering part of the rule is what says,  
11:51:02AM 6 here are the networks you can and can't connect to, given  
11:51:07AM 7 that you contain that tag.

11:51:09AM 8 Q. And that rule exists because a human, the network  
11:51:13AM 9 administrator, hit a button that said, quarantine that  
11:51:16AM 10 end-user, correct?

11:51:17AM 11 A. I certainly recall that's one of the ways, but I think  
11:51:21AM 12 with some of the advance systems, like using Xgrid, it can  
11:51:27AM 13 also be automated, but I don't think whether the human pushes  
11:51:30AM 14 the button or not is essentially particularly relevant to the  
11:51:33AM 15 analysis of the claim.

11:51:34AM 16 Q. That's fine, sir. I'm just trying to understand the  
11:51:39AM 17 facts.

11:51:39AM 18 All right. Now, the concept of quarantining the  
11:51:41AM 19 user's computer, that's been around for decades, right?

11:51:45AM 20 A. I mean, in some vague abstract sense. I imagine there  
11:51:50AM 21 may have been other --

11:51:52AM 22 Q. And by the way, despite it being --

11:51:57AM 23 A. I mean, you know, you'd have to point me to -- I mean, at  
11:52:00AM 24 an abstract level, okay.

11:52:02AM 25 Q. And despite it being a familiar concept, the word

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11:52:05AM 1 "quarantine" appears nowhere in the specific or the figures  
11:52:09AM 2 of the claim of the '193 patent, right?  
11:52:11AM 3 A. I don't know. I'd have to go look through it. I'll take  
11:52:16AM 4 your advisement.  
11:52:17AM 5 Q. And, in fact, the Identity Services Engine, or ISE, has  
11:52:20AM 6 been able to quarantine end users since April of 2012. Is  
11:52:24AM 7 that fair?  
11:52:24AM 8 A. Again, I don't -- you'd have to -- I didn't do a validity  
11:52:30AM 9 analysis, so you'd have to show me, you know -- again, just  
11:52:33AM 10 because it had something labeled "quarantine," I don't know  
11:52:37AM 11 that that would meet the claim elements. I haven't done that  
11:52:40AM 12 analysis. I don't recall that specifically.  
11:52:43AM 13 Q. Okay. Let's focus back on claim element C, and I want to  
11:52:48AM 14 talk about the particular packet-filtering rule that this  
11:52:52AM 15 claim requires, okay?  
11:52:53AM 16 A. Okay.  
11:52:54AM 17 Q. It's got to be configured to prevent a particular type of  
11:52:58AM 18 data transfer. Do you see that?  
11:53:00AM 19 A. Yes.  
11:53:00AM 20 Q. And, now, I do want to slow down here, because this gets  
11:53:04AM 21 a little confusing.  
11:53:05AM 22 What you said is that the particular type of data  
11:53:08AM 23 transfer is something called an HTTP POST or an HTTP GET.  
11:53:18AM 24 Those are the two particular types of data transfer in your  
11:53:22AM 25 summary for this patent, right, sir?

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11:53:24AM 1 A. Well, I think I would say that, you know, the claim  
11:53:30AM 2 element does not require that you get those and only those.

11:53:36AM 3 In particular, when we were talking about the  
11:53:39AM 4 HTTP GET and HTTP POST with respect to exfiltration, that was  
11:53:44AM 5 whether the system had noticed, and obviously, like, based on  
11:53:48AM 6 the fact that those might be used for exfiltration, it wanted  
11:53:51AM 7 to prevent those data transfers.

11:53:53AM 8 Q. I think I understand your answer, but let me be clear.

11:53:57AM 9 The particular type of data transfer you are  
11:53:59AM 10 accusing of infringement is something called an HTTP POST and  
11:54:03AM 11 an HTTP GET, correct?

11:54:06AM 12 A. That's a particular example I was using for exfiltration,  
11:54:11AM 13 but the system is obviously more general than that.

11:54:14AM 14 Q. Okay. And packets -- they have a header and a payload,  
11:54:19AM 15 right?

11:54:19AM 16 A. Yes, typically, you could describe it that way.

11:54:23AM 17 Q. And an HTTP POST or an HTTP GET, that kind of thing,  
11:54:28AM 18 that's always in the payload, right?

11:54:32AM 19 A. So if you're talking about the header with regard to IP  
11:54:38AM 20 and TCP, then, yes. I mean, typically, you might think of  
11:54:43AM 21 the HTTP -- that's often referred to, the POST or GET, as  
11:54:47AM 22 part of the HTTP header, so you would have to be a bit  
11:54:50AM 23 clearer about what you mean by headers.

11:54:53AM 24 THE COURT: All right. Let's -- you're using too  
11:54:55AM 25 many abbreviations here. I would ask the witness and counsel

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11:55:01AM 1 to please not use abbreviations.

11:55:04AM 2 MR. GAUDET: And, Your Honor, the only thing I'm  
11:55:06AM 3 trying to do is zero in on what he's saying was the  
11:55:09AM 4 particular type of data transfer.

11:55:09AM 5 BY MR. GAUDET:

11:55:11AM 6 Q. And so maybe could we call that the -- I think HTTP  
11:55:18AM 7 stands for, what, Hypertext Transport Protocol?

11:55:23AM 8 A. I think, to be clear --

11:55:24AM 9 THE COURT: It's okay to use HTTP, but you're using  
11:55:31AM 10 lots of other abbreviations that I'm not as familiar with.

11:55:37AM 11 MR. GAUDET: Okay. So let me try this one again.

11:55:39AM 12 BY MR. GAUDET:

11:55:39AM 13 Q. The HTTP POST or the HTTP GET -- and "POST" is just the  
11:55:46AM 14 word "post" and "GET" is just the word "get" -- that appears  
11:55:48AM 15 in the application layer in your seven-layer model that you  
11:55:55AM 16 presented, I believe it was, on Monday.

11:55:57AM 17 A. I think, just to back up to be clear, when we're talking  
11:56:01AM 18 about the particular type of data transfer, the particular  
11:56:04AM 19 type is the exfiltration out to that potentially bad second  
11:56:11AM 20 network. That could be through HTTP POST or HTTP GET, but it  
11:56:14AM 21 could also be through other means.

11:56:17AM 22 I think the point was that what the system noticed  
11:56:21AM 23 or what I was showing was that the system noticed the  
11:56:24AM 24 exfiltration. Like the type of data transfer it's trying to  
11:56:28AM 25 stop is this exfiltration, but that could happen by all sorts

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1 of other means. It's not necessarily restricted to POST or  
2 GET commands.

3 Q. Sir, I understand you have a theory, but please just  
4 answer my question so we can get some agreement on the facts,  
5 okay?

6 An HTTP POST or an HTTP GET, that is in the  
7 application layer of your seven-layer model, correct?

8 A. A Hypertext Transfer Protocol would generally be thought  
9 of as a layer-seven application layer.

10 Q. It certainly would not be in the 5-tuple, right?

11 A. The same --

12 THE COURT: It certainly wouldn't be in what?

13 MR. GAUDET: That was on me. I'm sorry.

14 BY MR. GAUDET:

15 Q. Dr. Mitzenmacher, are you familiar with something that's  
16 called the 5-tuple, 5 t-u-p-l-e?

17 A. Yes, sure.

18 Q. What is the 5-tuple, the 5 t-u-p-l-e?

19 A. The 5-tuple consists of information that is commonly  
20 found in the header of a packet. It's like source IP, source  
21 port, destination IP, destination port, and the protocol, I  
22 think.

23 Q. And that's the basic information that a router or a  
24 switch will use to route a packet, right?

25 A. That's some of the information like we'll use to wrap the

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11:57:47AM 1 packet. It's part of what's in the header.

11:57:49AM 2 Q. And that does not include an HTTP POST or an HTTP GET,

11:57:54AM 3 right?

11:57:55AM 4 A. I'm not clear what you're saying. Typically, that -- it

11:57:58AM 5 wouldn't be considered, I think, part of the 5-tuple, except

11:58:03AM 6 for the fact that -- you know, we have to be a little careful

11:58:07AM 7 there technically. HTTP is commonly associated with a port.

11:58:12AM 8 I think the typical port number for HTTP is 80. So in some

11:58:17AM 9 sense, like if you're saying "port 80," that's typically

11:58:23AM 10 assumed to be HTTP traffic, and that's also typically assumed

11:58:27AM 11 where you put the HTTP traffic; although, you know, there are

11:58:32AM 12 situations where that might switch.

11:58:34AM 13 Q. Sir, again, please listen to my question.

11:58:38AM 14 The HTTP POST command or the HTTP GET command will

11:58:43AM 15 not be part of the 5-tuple. Do you agree with that?

11:58:46AM 16 A. I don't believe the POST or GET part would be considered

11:58:49AM 17 part of the 5-tuple.

11:58:52AM 18 Q. Okay. Now, in Cisco Systems the quarantine commands

11:58:56AM 19 would never look at the application layer of a packet, right?

11:59:00AM 20 A. So if it wouldn't look at like -- I think you have to be

11:59:11AM 21 a bit clearer in your question. I mean, what do you mean by

11:59:14AM 22 the "application layer of the packet"? Because, like I just

11:59:17AM 23 was trying to describe, at least with the port numbers, those

11:59:20AM 24 are associated with certain ports, so the port numbers are

11:59:25AM 25 associated with applications.

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1 So I want to agree with you regarding maybe the  
2 "GET" and the "POST" part, but you're making a bit broader  
3 statement.

4 Q. Fair enough.

5 The quarantine rule would never look to see if  
6 there's an HTTP POST or an HTTP GET in the packet, right?

7 A. Well, again, it could look at the port to see if it's  
8 HTTP, or it could also look at the address, but I'm not sure  
9 it would specifically --

10 THE COURT: I don't know what that question means or  
11 what the answer to it would mean, Counsel.

12 MR. GAUDET: Thank you, Your Honor.

13 BY MR. GAUDET:

14 Q. The claim requires that a packet-filtering rule prevent a  
15 particular type of data transfer, correct?

16 A. Yes.

17 Q. Okay. The particular type of data transfer you are  
18 accusing is an HTTP GET or an HTTP POST, correct?

19 A. And I think the problem is that you're mischaracterizing  
20 my argument.

21 What I'm saying is the particular type of data  
22 transfer that's trying to be stopped is the exfiltration from  
23 a certain device. That could take the form of a GET or a  
24 POST, as we looked at how it was noticed, but you may -- you  
25 know, what you're trying to stop is the exfiltration.



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12:00:48PM 1 Q. And the rule is the quarantine rule, correct?

12:00:50PM 2 A. I guess if we have that understanding that I said before,

12:00:56PM 3 you know, this process is a quarantine, including, you know,

12:01:01PM 4 a corresponding ACL, along with the issues regarding the

12:01:07PM 5 security tag, yes.

12:01:08PM 6 Q. And rules operate by looking at the packet and seeing

12:01:12PM 7 whether or not something is in there, something specified by

12:01:15PM 8 the rule is in the packet or not, right?

12:01:18PM 9 THE COURT: But it also looks at the header, doesn't

12:01:21PM 10 it?

12:01:22PM 11 MR. GAUDET: Absolutely. Well, really -- exactly.

12:01:25PM 12 THE COURT: Sometimes it can't look inside the

12:01:28PM 13 packet.

12:01:28PM 14 MR. GAUDET: That was a bad question by me. You

12:01:30PM 15 were 100 percent right.

12:01:31PM 16 BY MR. GAUDET:

12:01:32PM 17 Q. The rules will look at the header of the packet and

12:01:35PM 18 apply -- and look for something in particular that is

12:01:39PM 19 specified in the rule, right?

12:01:42PM 20 A. At the very least, that's what they'll look at, yes.

12:01:46PM 21 Q. And the point is a quarantine rule has no ability to

12:01:49PM 22 figure out whether or not the packet has an HTTP POST in it

12:01:53PM 23 or an HTTP GET in it, which is -- do you agree with that?

12:02:02PM 24 THE COURT: I don't know what agreeing with that or

12:02:03PM 25 disagreeing with that would mean, Counsel. I want to -- I

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1 mean, there's no sense asking questions which the Court can't  
2 understand the meaning of the answer to.

3           Why are we spending so much time on HTTP GETs? What  
4 does that have to do with anything?

5           MR. GAUDET: Your Honor, in the summary that they  
6 gave you, the one-page summary at the end of his testimony,  
7 the only thing they identify as the particular type --

8           THE COURT: Show me the summary page.

9           MR. GAUDET: They didn't share it with me. Let's  
10 pull it up. I'll ask plaintiff's counsel to, please, pull up  
11 the summary from the end of the '193 patent.

12           They wouldn't give me a copy -- I would do it -- so  
13 I'll ask plaintiff's tech person to, please, pull up the  
14 summary at the end of the '193 patent.

15           MR. HANNAH: And, Your Honor, just to be clear,  
16 there's an agreement amongst the parties not to exchange  
17 demonstratives, which is why they don't have a copy of ours  
18 and we don't have a copy of theirs.

19           MR. GAUDET: And, Your Honor, it's the fourth  
20 bullet.

21           THE COURT: "The particular type of data transfer  
22 that is prevented from quarantined computers are HTTP POST  
23 and HTTP GET commands, which are used in exfiltration  
24 attacks."

25           All right. In other words, those -- that's the way

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12:03:57PM 1 you attack the network, is using the HTTP POST. You attack  
12:04:08PM 2 the network -- if you're trying to obtain some information  
12:04:14PM 3 out of a network, you're using HTTP POST.

12:04:19PM 4 Can you use anything else?

12:04:24PM 5 THE WITNESS: Yes, you could. So let me try and  
12:04:26PM 6 make clear, like what I've been trying to say in answering  
12:04:29PM 7 his questions.

12:04:31PM 8 The particular type of data transfer you're trying  
12:04:33PM 9 to stop is the exfiltration. You're trying to stop this  
12:04:37PM 10 person from gathering information and sending it out of the  
12:04:42PM 11 network. And the way that was detected, right -- one of the  
12:04:46PM 12 ways that can be detected is that you notice certain types of  
12:04:50PM 13 HTTP POST or HTTP GET commands.

12:04:55PM 14 THE COURT: Is there any other way of noticing it?

12:04:57PM 15 THE WITNESS: Yeah. I've seen things where it looks  
12:05:01PM 16 like other sorts of data hoarding. So I think it's  
12:05:06PM 17 definitely more general than that. Those were just meant to  
12:05:09PM 18 be examples of -- when I showed that, it was examples where  
12:05:14PM 19 it was like, oh, we noticed this, and this is an exfiltration  
12:05:18PM 20 possibility.

12:05:19PM 21 THE COURT: All right. Well, the basic point we've  
12:05:22PM 22 got to deal with here is that I'm not informed by  
12:05:33PM 23 obfuscation. If you can't answer, ask a question.

12:05:36PM 24 Or if the question can't be answered in some way to  
12:05:40PM 25 inform me, you're just wasting your time to ask the question.

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12:05:49PM 1 MR. GAUDET: Your Honor, I am very mindful of that.  
12:05:51PM 2 I'm trying to do this in steps to put it all -- to put it all  
12:05:57PM 3 together.

12:05:57PM 4 THE COURT: All right. Well --

12:06:00PM 5 MR. GAUDET: And, obviously, that's...

12:06:07PM 6 THE COURT: All right. Now, this patent was  
12:06:12PM 7 described as a patent that dealt with forwarding or dropping  
12:06:20PM 8 claims. You're describing it as a patent that was designed  
12:06:24PM 9 to quarantine something, which is part of dropping them.  
12:06:34PM 10 It's one method of dropping them, but only one, so I don't  
12:06:40PM 11 understand why your question is limited to quarantine.

12:06:46PM 12 MR. GAUDET: Your Honor, again, if we go back to  
12:06:49PM 13 that summary, this -- I'm sorry, the plaintiff's summary --  
12:06:55PM 14 this patent is about specific packet-filtering rules, and if  
12:07:01PM 15 the plaintiff will pull that summary back up, the only rules  
12:07:05PM 16 they're accusing are the quarantine rules. It's the third  
12:07:09PM 17 bullet. The one or more packet-filtering rules are the  
12:07:13PM 18 quarantine rules. That was the only thing they put in in  
12:07:17PM 19 their case. That, Your Honor, is why I'm focusing on  
12:07:20PM 20 quarantine rules.

12:07:20PM 21 THE COURT: That's not the way I understood their  
12:07:22PM 22 case. Maybe I misunderstood their case.

12:07:25PM 23 But you can -- packets are dropped, and that  
12:07:35PM 24 doesn't -- the fact that it's dropped doesn't mean it's  
12:07:38PM 25 quarantined. That's just one of several things that can

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12:07:45PM 1 happen if you drop a claim, isn't it?

12:07:48PM 2 MR. GAUDET: Well, packets have been dropped since  
12:07:52PM 3 the beginning of time, but the claim is written on a specific  
12:07:55PM 4 type of packet-filtering rule. That was that language we  
12:08:00PM 5 just looked at.

12:08:01PM 6 THE COURT: You said the word "quarantine" wasn't in  
12:08:04PM 7 there.

12:08:05PM 8 MR. GAUDET: Exactly. What they're accusing -- see,  
12:08:08PM 9 it's the third bullet, Your Honor. The packet says --

12:08:12PM 10 THE COURT: The third...

12:08:15PM 11 MR. GAUDET: The third bullet.

12:08:16PM 12 MR. HANNAH: Your Honor, I just want to put an  
12:08:17PM 13 objection in that they're mischaracterizing the case and  
12:08:20PM 14 testifying at this point.

12:08:24PM 15 MR. GAUDET: Your Honor, I would just ask you to  
12:08:25PM 16 read the third bullet. It's exactly --

12:08:29PM 17 THE COURT: Well, these bullets are not all the  
12:08:31PM 18 evidence. They're bullets. I don't understand that  
12:08:40PM 19 quarantine is the only thing that happens to a packet that's  
12:08:49PM 20 dropped or that the only way to drop a packet is to  
12:08:53PM 21 quarantine it. That's not what I understood the evidence to  
12:09:00PM 22 be.

12:09:04PM 23 So, as I say, this strikes me as starting on a path  
12:09:10PM 24 of obfuscation rather than a path of informing the Court.

12:09:21PM 25 MR. GAUDET: Your Honor --

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12:09:22PM 1 THE COURT: Confusing me is not going to accomplish  
12:09:26PM 2 anything.

12:09:28PM 3 MR. GAUDET: Your Honor, we certainly do not want to  
12:09:30PM 4 confuse you.

12:09:31PM 5 THE COURT: All right. Well, I think of this patent  
12:09:33PM 6 as forwarding or dropping packets.

12:09:36PM 7 MR. GAUDET: Correct.

12:09:37PM 8 THE COURT: I don't understand all this focus on  
12:09:40PM 9 quarantine because it happened to be in their summary. As I  
12:09:44PM 10 understand "quarantine," it's one of the things that can  
12:09:47PM 11 happen to a packet that's dropped; it's not the only thing.

12:09:52PM 12 MR. GAUDET: Absolutely. But our point is it is the  
12:09:55PM 13 only thing they accused of satisfying a very specific claim  
12:10:00PM 14 limitation. We all agree a lot of other things can happen to  
12:10:03PM 15 packets. I'm just trying to focus on the specific claim  
12:10:06PM 16 limitation.

12:10:09PM 17 These systems have thousands and thousands of rules.  
12:10:12PM 18 They're accusing one rule, and the one -- and a lot of other  
12:10:15PM 19 things can happen, but the one specific rule that they accuse  
12:10:20PM 20 for this particular patent, even though there are lots of  
12:10:23PM 21 other things these systems do, was the quarantine rule. And  
12:10:27PM 22 of course there are a lot of other ways packets get dropped,  
12:10:31PM 23 there are a lot of other ways packets get forwarded, but,  
12:10:34PM 24 according to their case, the only thing that satisfied the  
12:10:39PM 25 packet-filtering rule was the quarantine. That's how we

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1 understood it.

2 THE COURT: That's not my understanding of their  
3 case. If you want to proceed on that basis, go ahead.

4 That's not the way I understand their case at this point, so  
5 you're going to first have to persuade me that quarantine is  
6 the only thing they're talking about as far as infringement  
7 is concerned, before you spend a lot of time limiting your  
8 cross-examination to quarantine.

9 MR. GAUDET: Sure, and I'll ask Dr. Mitzenmacher.

10 BY MR. GAUDET:

11 Q. Dr. Mitzenmacher, were there other rules you identified  
12 as the first -- actually, go back, and let's pull up the  
13 claim language.

14 Do you see that the claim requires packet-filtering  
15 rules? Do you see that in element C?

16 A. Yes.

17 Q. Okay. Now, were there rules that you identified  
18 specifically on direct examination that were not rules  
19 associated with a quarantine as satisfying this element,  
20 satisfying this packet-filtering rule, something that is not  
21 in any way associated with the quarantine?

22 A. So I would have to look back over my testimony. I don't  
23 recall specifically discussing others, but, again, the point  
24 of the security rules and the quarantine was that it was like  
25 a primary exemplar of the sort of, you know, action or

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12:12:17PM 1 response that the system could take.

12:12:21PM 2 MR. GAUDET: And, Your Honor, realizing it's all  
12:12:24PM 3 very confusing, but I do think he just confirmed our point.  
12:12:27PM 4 That was -- the quarantine rules are the rules he discussed  
12:12:31PM 5 as satisfying this element.

12:12:33PM 6 MR. HANNAH: Objection, Your Honor. He just said  
12:12:36PM 7 that it was an example.

12:12:38PM 8 THE COURT: Yeah, and he also said he didn't use any  
12:12:40PM 9 other examples, so I'm not sure where that leaves us.

12:12:46PM 10 He said that that was the example he used, and he  
12:12:49PM 11 doesn't recall using any other example, so the question is  
12:12:56PM 12 where does that leave us? But this is a very complex  
12:13:03PM 13 technology, Counsel, and --

12:13:11PM 14 MR. GAUDET: Your Honor, what I would propose is --  
12:13:13PM 15 and, obviously, we're going to tie all this together when we  
12:13:17PM 16 have our witnesses -- I'm just going to ask him a handful of  
12:13:20PM 17 questions about quarantine, realizing they're at least  
12:13:26PM 18 relevant, and then I just want to get his agreement, and then  
12:13:29PM 19 we're going to move on from the quarantine issue, if  
12:13:31PM 20 that's --

12:13:31PM 21 THE COURT: All right. Well, he has agreed that the  
12:13:33PM 22 quarantine is the only example he used of what happens when  
12:13:39PM 23 you drop a packet. So, that, he's admitted, so let's move on  
12:13:47PM 24 from there.

12:13:50PM 25 BY MR. GAUDET:



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12:13:50PM 1 Q. And the quarantine rules cannot determine from a packet  
12:13:55PM 2 whether the packet has this thing we called the HTTP POST or  
12:13:59PM 3 the HTTP GET, correct?

12:14:02PM 4 A. I would say it might not be looking specifically for the  
12:14:08PM 5 POST or the GET, but it's looking at both the network address  
12:14:12PM 6 of where it's coming from, and it may also look at the port,  
12:14:14PM 7 which would specify whether it's HTTP or not.

12:14:18PM 8 Q. Okay. And there's no such thing in the Cisco system as  
12:14:21PM 9 an exfiltration-specific quarantine, right?

12:14:25PM 10 In other words, quarantines -- quarantines are the  
12:14:30PM 11 same for anyone who has been quarantined, regardless of the  
12:14:33PM 12 reason they've been quarantined, right?

12:14:35PM 13 A. I guess I'm not particularly clear on your question, but  
12:14:41PM 14 to the extent I'm clear, you know, quarantine is used to  
12:14:45PM 15 provide some sort of tag and associated rules with that tag.  
12:14:52PM 16 I imagine you could quarantine for other purposes.

12:14:54PM 17 Q. And it doesn't matter what the reason is that an  
12:14:57PM 18 administrator decided to quarantine someone. Anyone  
12:15:03PM 19 quarantined now has the same set of rules applied to their  
12:15:07PM 20 packets. Is that fair?

12:15:08PM 21 A. Sorry. Could you say that again?

12:15:11PM 22 Q. Sure. Regardless of what reason the network  
12:15:14PM 23 administrator decided to quarantine someone, anyone who has  
12:15:17PM 24 been quarantined will then have the same set of quarantine  
12:15:21PM 25 rules applied to their packets?

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12:15:23PM 1 A. That may be the case in some instances, but I think it  
12:15:38PM 2 may also not be the case in other instances. I think it  
12:15:41PM 3 might depend on the setup of the network and what you did for  
12:15:45PM 4 the quarantine rules.

12:15:47PM 5 Q. We're going to shift gears a little bit; maybe a lot a  
12:15:50PM 6 bit.

12:15:50PM 7 I want to talk about some of the documents that you  
12:15:53PM 8 pulled up on direct, so let's pull up Plaintiff's Trial  
12:15:57PM 9 Exhibit 1276.

12:16:01PM 10 MR. GAUDET: And, Your Honor, this document will be  
12:16:03PM 11 in plaintiff's binder, so it's not in the small binder that  
12:16:07PM 12 we gave you today.

12:16:16PM 13 THE COURT: Okay. I've got 1276.

12:16:20PM 14 MR. GAUDET: Okay. And I want to pull up Page 216  
12:16:23PM 15 of this document, and it's both Page 216 of the document and  
12:16:30PM 16 the Bates Page 216.

12:16:33PM 17 THE COURT: Okay.

12:16:34PM 18 BY MR. GAUDET:

12:16:34PM 19 Q. Now, let's pull out that chart there, that figure. Now,  
12:16:43PM 20 Dr. Mitzenmacher, you referenced this figure a dozen times,  
12:16:47PM 21 or something like that, during the course of your testimony  
12:16:49PM 22 to show how packets come in and out of the accused routers  
12:16:55PM 23 and switches.

12:16:55PM 24 A. Yes.

12:16:56PM 25 Q. Okay. I want to split the screen here. Set that one to

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12:17:01PM	1	the left, and let's pull up Plaintiff's Exhibit 1193.
12:17:08PM	2	MR. GAUDET: And, Your Honor, Plaintiff's
12:17:10PM	3	Exhibit 1193 is going to be in your binder, in your cross
12:17:15PM	4	binder. I'm sorry, Your Honor. This is now in the small
12:17:31PM	5	binder, the cross binder.
12:17:40PM	6	THE COURT: What exhibit is this?
12:17:42PM	7	MR. GAUDET: This is PTX-1193, Your Honor.
12:17:42PM	8	THE COURT: PTX?
12:18:03PM	9	MR. GAUDET: Oh. It is, Your Honor. Although it's
12:18:06PM	10	in our cross binder, it's actually marked --
12:18:09PM	11	THE COURT: All right. I have your cross binder.
12:18:10PM	12	MR. GAUDET: Yes. It's actually PTX, with a P. It
12:18:14PM	13	was marked as a plaintiff's exhibit.
12:18:17PM	14	THE COURT: 1196? Is that the number?
12:18:23PM	15	MR. GAUDET: 1193, Your Honor.
12:18:25PM	16	THE COURT: All right, I've got it.
12:18:31PM	17	So this was not introduced by the plaintiff.
12:18:34PM	18	MR. GAUDET: This was not introduced by the
12:18:35PM	19	plaintiff. It's got a plaintiff's mark number on it.
12:18:40PM	20	THE COURT: Do you want to introduce it?
12:18:42PM	21	MR. GAUDET: Your Honor, I'm going to ask a few
12:18:44PM	22	foundational questions, but right now this is primarily for
12:18:49PM	23	impeachment.
12:18:50PM	24	THE COURT: All right.
12:18:51PM	25	BY MR. GAUDET:

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12:18:51PM 1 Q. Do you see the bottom there? It's got the modification  
12:18:55PM 2 history, Dr. Mitzenmacher.  
12:18:56PM 3 A. Yes.  
12:18:56PM 4 Q. And you testified that that modification history in Cisco  
12:19:00PM 5 documents -- that's how you figure out when the document was  
12:19:02PM 6 really written, right?  
12:19:04PM 7 A. I would assume from this that, for instance, yeah, that  
12:19:08PM 8 the first draft was from 3/31/2008.  
12:19:12PM 9 Q. And the last date there is September 2010. We'll  
12:19:15PM 10 highlight that. Do you see that?  
12:19:17PM 11 A. Yeah.  
12:19:17PM 12 Q. Okay. I just want to go to the second page so we can  
12:19:20PM 13 see. There's -- pull this other thing over, Mr. Simons.  
12:19:24PM 14 The second page. There's no more modification  
12:19:27PM 15 history, so the last date of this document is September 2010,  
12:19:30PM 16 as best as you can tell, right?  
12:19:34PM 17 A. As best as I can tell from you showing me this document.  
12:19:36PM 18 Q. Okay. Let's go to Page 7. I want to blow up --  
12:19:36PM 19 THE COURT: Of what?  
12:19:43PM 20 MR. GAUDET: I'm sorry, you're right. Page 7 of  
12:19:44PM 21 Plaintiff's Exhibit 1193, Your Honor.  
12:19:48PM 22 So this is the second one that we've pulled out,  
12:19:51PM 23 it's in the smaller binder, and it's Page 7.  
12:19:51PM 24 BY MR. GAUDET:  
12:19:54PM 25 Q. And what I want to do is, again, blow up this figure on

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12:19:58PM 1 this 2010 document and put them side by side, okay?

12:20:07PM 2 Dr. Mitzenmacher, the image you showed the Court a

12:20:13PM 3 dozen times about the accused product and how they operate, a

12:20:17PM 4 literally verbatim, identical version of that appears in a

12:20:21PM 5 2010 document by Cisco, right?

12:20:23PM 6 A. I mean, if that's what you're showing me. I don't

12:20:28PM 7 think -- I'm not sure I recall seeing that other document

12:20:31PM 8 before, but if that's what you're showing me, sure. I guess

12:20:34PM 9 the Court can see them side by side.

12:20:36PM 10 Q. 2010 is long before any of these patents were filed,

12:20:40PM 11 right?

12:20:40PM 12 A. I'd have to check the dates, but that sounds right.

12:20:44PM 13 Q. Okay. Now, let's take the left document off the screen

12:20:49PM 14 here. That's PTX-1276. Let's take that one off the screen,

12:20:55PM 15 and I want to go back to the first page of PTX-1193, okay?

12:21:03PM 16 Now, you see that first page, the first page of this

12:21:08PM 17 document? This is a 2010 document, right?

12:21:11PM 18 A. I guess so, yes.

12:21:15PM 19 Q. Do you see this first page? The title is NG3K, yet

12:21:23PM 20 another acronym. Do you see that?

12:21:25PM 21 A. Yes.

12:21:26PM 22 Q. Okay. Do you recall giving some testimony --

12:21:28PM 23 THE COURT: NG -- where did you get NG --

12:21:30PM 24 MR. GAUDET: I'll ask Mr. Simons to highlight it.

12:21:33PM 25 It's in the title on the first page. It says, "NG3K."

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12:21:42PM 1 THE COURT: All right.

12:21:43PM 2 MR. GAUDET: And just with a few questions, I'm  
12:21:45PM 3 going to get us to an explanation of what that means.

12:21:48PM 4 BY MR. GAUDET:

12:21:49PM 5 Q. And so, Dr. Mitzenmacher, do you recall testifying about  
12:21:51PM 6 next generation in the name of firewalls, next-generation  
12:21:55PM 7 firewalls? Do you recall that?

12:21:56PM 8 A. Yes.

12:21:57PM 9 Q. And you suggested that the phrase "next generation"  
12:22:01PM 10 suggests that in the last few years, Cisco adopted something  
12:22:05PM 11 new and that specifically correlates to the functionality in  
12:22:08PM 12 the patent. Do you recall something like that?

12:22:11PM 13 A. I mean, I think I recall saying generally it was part of  
12:22:14PM 14 their marketing, and I think it was designed to signal  
12:22:20PM 15 something new.

12:22:21PM 16 Q. Okay. This is a 2010 document using the acronym NG3K.  
12:22:26PM 17 Let's go to Page 7 of this document -- I'm sorry, Page 22 of  
12:22:34PM 18 this document, and let's highlight the meaning of "NG3K" from  
12:22:40PM 19 2010.

12:22:41PM 20 Do you see that?

12:22:41PM 21 A. Sure.

12:22:42PM 22 THE COURT: Page what of the document?

12:22:44PM 23 MR. GAUDET: Page 22.

12:22:58PM 24 THE COURT: All right. I see you've got a whole  
12:23:01PM 25 list there, one of which is NG3K.

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12:23:05PM 1 BY MR. GAUDET:

12:23:05PM 2 Q. All right. And this list confirms, sir, that Cisco was  
12:23:08PM 3 using that phrase "next generation" back in 2010, right,  
12:23:12PM 4 Dr. Mitzenmacher?

12:23:13PM 5 A. Sure, but I'm not sure that's particularly relevant to  
12:23:17PM 6 anything. I guess it's nice that they used that marketing  
12:23:23PM 7 during my "Yes" back then, too. But, again, my evidence was  
12:23:28PM 8 meant to discuss the specific technologies and the specific  
12:23:32PM 9 technologies that were developed or constructed in the time  
12:23:35PM 10 frame that I've been discussing.

12:23:37PM 11 MR. GAUDET: Your Honor, we move to admit  
12:23:39PM 12 Plaintiff's Exhibit 1193.

12:23:50PM 13 THE COURT: PTX-1193 will be admitted.

12:23:50PM 14 (Plaintiff's Exhibit PTX-1193 was received in  
12:23:57PM 15 evidence.)

12:23:57PM 16 THE COURT: Actually, that particular page says  
12:24:03PM 17 "Copyright 2007."

12:24:07PM 18 MR. GAUDET: Your Honor, just to give you a little  
12:24:10PM 19 clarity, as the witness explained on direct, sometimes those  
12:24:14PM 20 copyright dates might not be reliable, but what's reliable is  
12:24:19PM 21 the modification history, which actually shows you when  
12:24:24PM 22 things were done, and that's on the first page. So the first  
12:24:27PM 23 page is where you get the real date.

12:24:31PM 24 THE COURT: Okay. And at the top of that page it  
12:24:33PM 25 says, "Date printed: 4/3/2020."

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12:24:40PM 1 MR. GAUDET: It was printed for this litigation,  
12:24:42PM 2 Your Honor.

12:24:44PM 3 THE COURT: Okay.

12:24:45PM 4 BY MR. GAUDET:

12:24:47PM 5 Q. Okay. One more point that I want to make with this  
12:24:50PM 6 document, and to set this one up, let's pull up Plaintiff's  
12:24:50PM 7 Trial Exhibit 1288.

12:24:55PM 8 MR. GAUDET: So, Your Honor --

12:24:56PM 9 THE COURT: Well, I don't understand why it could  
12:25:01PM 10 say "Copyright 2007" and say -- have the date of the final  
12:25:12PM 11 modification 2010. The first originator was in 2008. How  
12:25:25PM 12 could it be copyrighted in 2007?

12:25:30PM 13 MR. GAUDET: Your Honor, I believe Dr. Mitzenmacher  
12:25:31PM 14 actually explained that on direct; that sometimes people --  
12:25:36PM 15 this is an internal document. Sometimes people will pull up  
12:25:41PM 16 a prior form and work from the prior form, and it might have  
12:25:46PM 17 that header embedded in it. But that's why the modification  
12:25:50PM 18 history is really the place to go.

12:25:51PM 19 That's an excellent question, though, Your Honor.

12:25:56PM 20 THE COURT: All right.

12:25:59PM 21 MR. GAUDET: I want to pull up Plaintiff's  
12:26:04PM 22 Exhibit 1288, and this is from the plaintiff's binder.

12:26:21PM 23 THE COURT: All right, I've got 1288.

12:26:24PM 24 MR. GAUDET: And let's go here to Page 13.

12:26:40PM 25 THE COURT: Okay.



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12:26:41PM	1	MR. GAUDET: And I want to highlight, Mr. Simons,
12:26:44PM	2	the paragraph with "An IPv4 ACL."
12:26:50PM	3	THE COURT: This is 1288, Page -- what?
12:26:55PM	4	MR. GAUDET: At Page 13, Your Honor.
12:26:57PM	5	THE COURT: Okay.
12:26:57PM	6	BY MR. GAUDET:
12:27:02PM	7	Q. And, Dr. Mitzenmacher, this was, again, a document that
12:27:07PM	8	you referenced a time or two in your direct examination to
12:27:10PM	9	explain how packets are processed in Cisco's routers and
12:27:13PM	10	switches, and you specifically pointed to this language
12:27:15PM	11	that's highlighted, beginning with "An IPv4..."
12:27:19PM	12	Do you see that?
12:27:20PM	13	A. Yes.
12:27:20PM	14	Q. Let's set that one to one side and again pull up
12:27:27PM	15	Plaintiff's Exhibit 1193, the document we were looking at a
12:27:32PM	16	moment ago.
12:27:33PM	17	And, again, this is the 2010 Cisco document, right,
12:27:37PM	18	Dr. Mitzenmacher, on the right side?
12:27:40PM	19	A. Yes.
12:27:40PM	20	Q. And let's go to Page 8. And I'll ask Mr. Simons to again
12:27:49PM	21	highlight the language "An IPv4."
12:27:56PM	22	And, Dr. Mitzenmacher, if you would confirm with me
12:27:59PM	23	that the identical language, verbatim, that you pointed to in
12:28:03PM	24	the accused products, appears in this 2010 Cisco document,
12:28:09PM	25	right?

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12:28:09PM 1 A. I would have to check. It looks like the language may be  
12:28:14PM 2 the same. And, again, I was using this language simply to  
12:28:18PM 3 show something specific; namely, that there were ways of  
12:28:22PM 4 permitting and denying, or forwarding and blocking, packets.  
12:28:25PM 5 That's like one small part of the claim element. That  
12:28:33PM 6 doesn't, I think, relate to most of my argument.

12:28:37PM 7 Q. Okay. Shift gears one more time. This is the last topic  
12:28:42PM 8 for this patent. I want to talk about the various  
12:28:45PM 9 combinations of things that we discussed.

12:28:50PM 10 Now, you've identified routers and switches, right?  
12:28:55PM 11 We talked a lot about routers and switches, correct?

12:28:57PM 12 A. Yes.

12:28:58PM 13 Q. Okay. You also talked about Stealthwatch as part of this  
12:29:01PM 14 patent, right?

12:29:01PM 15 A. I didn't talk about it as part of the patent, except for,  
12:29:07PM 16 you know, there -- the patent calls for a system that  
12:29:13PM 17 receives certain types of information, and I was saying that  
12:29:16PM 18 one of the places that that information could come from was  
12:29:25PM 19 via the Stealthwatch, I believe, as I recall. But, again,  
12:29:28PM 20 Stealthwatch isn't itself receiving the information or part  
12:29:30PM 21 of the system or code that's required by the claims.

12:29:34PM 22 Q. That's fine, but you referenced Stealthwatch a few dozen  
12:29:38PM 23 times, something like that. Is that fair?

12:29:41PM 24 A. I don't recall specifically, but I may have.

12:29:42PM 25 Q. Okay. Now, not everyone who buys a Cisco router or

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12:29:47PM 1 switch buys Stealthwatch or has Stealthwatch, right?

12:29:49PM 2 A. I believe that's the case.

12:29:53PM 3 Q. In fact, Cisco has about 100,000 unique customers, in

12:29:58PM 4 other words individual customers, who have bought at least

12:30:01PM 5 one router or switch. Does that sound about right?

12:30:03PM 6 A. I'm afraid I don't know those numbers. That sounds like

12:30:06PM 7 something that the damages people might be able to speak on,

12:30:09PM 8 but I don't recall specific sales numbers.

12:30:12PM 9 Q. You did review the damages reports, though, right?

12:30:14PM 10 A. I believe so, at some point, but, again, you know, that's

12:30:20PM 11 not my bailiwick, I guess.

12:30:24PM 12 Q. Well, of those 100,000 customers, about 2,500 of them

12:30:30PM 13 even have Stealthwatch activated. Is that fair?

12:30:33PM 14 A. Again, you'd have to show me. That's certainly not --

12:30:37PM 15 THE COURT: Is this witness supposed to know the

12:30:39PM 16 answer to that question?

12:30:41PM 17 MR. GAUDET: Your Honor, what we're trying to

12:30:43PM 18 establish is that this person is supposed to be laying the

12:30:47PM 19 predicate for their damages expert to then tell us -- and I

12:30:51PM 20 just want to establish he didn't do this analysis.

12:30:56PM 21 THE COURT: Well, it doesn't seem like to me that

12:30:58PM 22 this is a type of thing that this witness would know, unless

12:31:02PM 23 he got a note of the damage. I mean, how would he know how

12:31:09PM 24 many of Cisco's customers ordered Stealthwatch?

12:31:13PM 25 MR. HANNAH: Objection, Your Honor. I object to the

~~Mitzenmacher, M. - Cross~~

1 extent that Counsel is testifying here.

2 THE COURT: Well, that's what I mean.

3 MR. GAUDET: Sure.

4 THE COURT: I mean, because you're cross-examining  
5 the witness -- of course, the question is not evidence, so I  
6 mean -- but I don't know the basis for the question. Why  
7 would the witness know that?

8 MR. GAUDET: Your Honor, let me clean this all up  
9 with a single question.

10 BY MR. GAUDET:

11 Q. Dr. Mitzenmacher, you didn't undertake any analysis to  
12 figure out how many of Cisco's router and switch customers  
13 also buy Stealthwatch or also buy Cognitive Threat Analytics  
14 or also buy the Identity Services Engine. You don't know any  
15 of those numbers. Is that fair?

16 A. I certainly couldn't recite them to you. Off the top of  
17 my head, I don't know them, but, again, since these are both  
18 system claims and computer-readable medium claims, which  
19 relate to the code on the switches and the performance of the  
20 switches and all our end routers, and all of these devices  
21 have the code there to do these things, as I've described, I  
22 just am not clear why that would specifically be relevant for  
23 me, but...

24 Q. I think we're where we need to be on that one.

25 MR. GAUDET: Your Honor, we're going to shift to the

~~Mitzenmacher, M. - Cross~~

12:32:34PM 1 next patent.

12:32:37PM 2 THE COURT: Okay.

12:32:39PM 3 BY MR. GAUDET:

12:32:39PM 4 Q. Let's go to the '806 patent. And this is JTX-2.

12:32:47PM 5 This patent, Dr. Mitzenmacher, you've referenced as  
12:32:51PM 6 the operationalized -- I'm sorry. I'm jumping ahead of  
12:32:56PM 7 myself.

12:32:57PM 8 You've referenced this as the rule swap patent,  
12:32:59PM 9 correct?

12:33:00PM 10 A. I believe that's one of the shorthands we've used, yeah.

12:33:05PM 11 Q. Okay. And on this one, in addition to routers and  
12:33:07PM 12 switches, you're also accusing firewalls. Is that fair?

12:33:10PM 13 A. Yes.

12:33:11PM 14 Q. Okay. And you used this phrase "operationalized threat  
12:33:15PM 15 intelligence" a few times. I just want to be clear. What do  
12:33:18PM 16 you mean by the phrase "threat intelligence"?

12:33:20PM 17 A. "Threat intelligence" would typically correspond to, you  
12:33:26PM 18 know, information regarding threats, descriptions of threats.  
12:33:31PM 19 There are a variety of different protocols and formats that  
12:33:34PM 20 are used to describe this.

12:33:36PM 21 It could also be just intelligence information  
12:33:39PM 22 gathered by -- you know, in the course of running the network  
12:33:45PM 23 that Cisco sees that it later feeds back into this ecosystem  
12:33:50PM 24 of information.

12:33:50PM 25 Q. I want to get this straight in my head.

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12:33:53PM	1	You used the phrase "threat indicators" at one
12:33:57PM	2	point. Do you recall that?
12:33:57PM	3	A. Yes.
12:33:57PM	4	Q. And are threat indicators -- that's like threat
12:34:01PM	5	intelligence?
12:34:01PM	6	A. That would be an example.
12:34:03PM	7	Q. Okay. Now, you repeated some testimony, or referenced
12:34:13PM	8	it, from Dr. Moore that Centripetal coined the phrase
12:34:17PM	9	"operationalized threat intelligence."
12:34:20PM	10	Do you remember saying that?
12:34:20PM	11	A. I think I said that he had said that.
12:34:26PM	12	Q. Okay. Do you have any idea -- and then you said that
12:34:27PM	13	Cisco used that phrase, too. Do you recall that?
12:34:30PM	14	A. I did note that Cisco uses that phrase, too.
12:34:34PM	15	Q. Okay. When do you think Centripetal coined the phrase
12:34:41PM	16	"operationalized threat intelligence"?
12:34:42PM	17	A. I would probably have to ask Dr. Moore.
12:34:45PM	18	Q. Okay. Well, Centripetal didn't have a product in the
12:34:47PM	19	marketplace until 2014. You agree with me about that, right?
12:34:50PM	20	A. That sounds about right. I'd have to look it up, but --
12:34:55PM	21	Q. That was the RuleGATE product. Is that generally
12:34:58PM	22	familiar with you?
12:34:58PM	23	A. Certainly the RuleGATE product, but did they have any
12:35:02PM	24	previous products or anything? I don't recall what their
12:35:06PM	25	timeline exactly is, but that sounds about right.

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12:35:08PM 1 Q. Well, you actually know and you've confirmed that Cisco  
12:35:15PM 2 used the phrase "operationalized threat indicators" before  
12:35:19PM 3 2014, right?

12:35:20PM 4 A. You'd have to show me. I mean --

12:35:20PM 5 Q. Okay.

12:35:25PM 6 A. -- I certainly don't recall offhand, but you could show  
12:35:27PM 7 me.

12:35:28PM 8 Q. Let's pull up Defendant's Exhibit --

12:35:30PM 9 THE COURT: Operationalized -- what?

12:35:32PM 10 MR. GAUDET: Threat indicators, the example of  
12:35:43PM 11 threat intelligence that he just spoke of.

12:35:45PM 12 THE COURT: Right, okay.

12:35:46PM 13 BY MR. GAUDET:

12:35:46PM 14 Q. Let's pull up Defendant's Exhibit 632.

12:36:02PM 15 MR. GAUDET: Your Honor, this will be in the small  
12:36:05PM 16 notebook.

12:36:06PM 17 THE COURT: Yes, I've got it, "Operationalizing  
12:36:12PM 18 Threat Indicators."

12:36:13PM 19 BY MR. GAUDET:

12:36:14PM 20 Q. This is a Cisco document, right, Dr. Mitzenmacher?

12:36:17PM 21 A. It would appear to be. Again, just for my reference,  
12:36:25PM 22 because I can't recall, is this one of the documents, say,  
12:36:30PM 23 from my report at some point?

12:36:33PM 24 Q. It is, and I'm going to help you out there.

12:36:35PM 25 Let's split the screen, and I want to pull up --

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12:36:41PM 1 it's going to be Page 68 or PDF 76 of your reply report.

12:36:58PM 2 THE COURT: Wait a minute. This is what?

12:36:59PM 3 MR. GAUDET: So, Your Honor, one of the tabs in your  
12:37:03PM 4 binder says "Reply Report," and it's a copy of pages of  
12:37:07PM 5 Dr. Mitzenmacher's reply report in this case. So what we've  
12:37:10PM 6 done is put -- when we want to compare something in these  
12:37:16PM 7 documents --

12:37:16PM 8 THE COURT: Okay, 632. Where did this other page  
12:37:19PM 9 come from?

12:37:20PM 10 MR. GAUDET: So 632 is the defendant's exhibit. The  
12:37:23PM 11 other page is from his reply report, when he's talking about  
12:37:28PM 12 Exhibit 632.

12:37:30PM 13 THE COURT: Okay. So I don't have the one on the  
12:37:33PM 14 right?

12:37:35PM 15 MR. GAUDET: So the reply report, Your Honor, should  
12:37:38PM 16 be towards the beginning of your small notebook. There  
12:37:43PM 17 should be a tab that says "Reply Report" in your small  
12:37:47PM 18 notebook.

12:37:47PM 19 THE COURT: What tab is it?

12:37:48PM 20 MR. GAUDET: It literally says "Reply Report" in the  
12:37:54PM 21 cross binder.

12:37:55PM 22 THE COURT: Okay.

12:37:58PM 23 MR. GAUDET: And you see the first page indicates  
12:38:00PM 24 it's a reply report.

12:38:02PM 25 THE COURT: Right. And look at Page what?



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12:38:04PM 1 MR. GAUDET: Page 68.

12:38:10PM 2 THE COURT: Okay.

12:38:10PM 3 BY MR. GAUDET:

12:38:12PM 4 Q. And what I want to do is just highlight the phrase,  
12:38:17PM 5 Doctor -- well, "Cisco-Centripetal 93527, which I discussed  
12:38:23PM 6 above, has a metadata date of 2013."

12:38:30PM 7 That's in paragraph 94. It's the third-to-last  
12:38:34PM 8 line.

12:38:36PM 9 THE COURT: Right. That has a metadata date of  
12:38:44PM 10 2013.

12:38:44PM 11 MR. GAUDET: Correct.

12:38:49PM 12 THE COURT: Okay. Where -- okay. Because there is  
12:38:51PM 13 no date that I can read on 632, so you're dating it based on  
12:38:56PM 14 his report.

12:38:57PM 15 MR. GAUDET: That's correct, Your Honor.

12:39:02PM 16 THE WITNESS: Well, you'd have to point me to when I  
12:39:05PM 17 say, "which I discussed above."

12:39:07PM 18 I mean, a metadata date just means that there was  
12:39:12PM 19 some label somewhere that said it was 2013. I don't recall  
12:39:15PM 20 the specifics of this document, but, you know, generally  
12:39:20PM 21 speaking, just because a file, like, on its metadata had a  
12:39:28PM 22 date of 2013, I generally might want some additional  
12:39:32PM 23 confirmation, but I don't recall what I said earlier.

12:39:34PM 24 I also note that I -- you know, it's a bit weird. I  
12:39:39PM 25 don't have my report, I think, on hand -- or I can see if I

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12:39:43PM 1 have a physical copy. I have an electronic copy. I don't  
12:39:46PM 2 know how this works in the new age. Usually, I would have a  
12:39:50PM 3 copy of the binder, so...  
12:39:50PM 4 BY MR. GAUDET:  
12:39:53PM 5 Q. Dr. Mitzenmacher, let me ask you a question.  
12:39:56PM 6 A. Sure.  
12:39:56PM 7 Q. Metadata -- metadata is information about a document that  
12:40:04PM 8 sort of travels with the document that tells you when it was  
12:40:07PM 9 created, when it was revised, maybe some other things.  
12:40:11PM 10 Is that a fair description of "metadata"?  
12:40:17PM 11 A. That is certainly what it is supposed to do. As I was  
12:40:20PM 12 stating -- and, again, it would help if I saw previously what  
12:40:23PM 13 I had said above in the report, because I clearly am  
12:40:28PM 14 referencing other things above in the report.  
12:40:30PM 15 THE COURT: All right. Well, this says -- it has  
12:40:43PM 16 this Cisco-Centripetal number on the bottom, 00093527, and  
12:41:00PM 17 then it has 001, so that's the same number.  
12:41:11PM 18 MR. GAUDET: Right.  
12:41:13PM 19 THE WITNESS: I think the point is that -- and,  
12:41:15PM 20 again, it would be helpful if you would point to a reference.  
12:41:18PM 21 My earlier discussion -- you know, just as I read this,  
12:41:22PM 22 typically when I would say something has a metadata date of  
12:41:31PM 23 something that's given to me by someone else, I would  
12:41:34PM 24 generally ask for additional information or an understanding  
12:41:36PM 25 of where that metadata date came from.

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12:41:38PM 1 But if you would like to say that the document came  
12:41:41PM 2 from 2013, which I think is what this is actually saying,  
12:41:45PM 3 like that Cisco's purported date for this document is 2013,  
12:41:48PM 4 and I was working under that purported assumption.  
12:41:54PM 5 BY MR. GAUDET:  
12:41:54PM 6 Q. Just to be clear, sir, the document on the right, those  
12:41:58PM 7 are your words in your report saying that it's got a metadata  
12:42:02PM 8 date of 2013.  
12:42:03PM 9 A. Again, like, if you could point me to the report or allow  
12:42:06PM 10 me to look at my report to say when I say -- which I  
12:42:09PM 11 discussed about has a metadata date of 2013. You know, how I  
12:42:14PM 12 read that or why I infer that is that the document you  
12:42:18PM 13 provided us had a purported date of 2013, you know, again,  
12:42:23PM 14 from the metadata, but I, myself, can't verify the Cisco  
12:42:29PM 15 metadata. So I don't know -- I'm not trying to verify that,  
12:42:33PM 16 or I am not a suitable verification --  
12:42:37PM 17 Q. Sir, let me do it this way:  
12:42:39PM 18 I do not want there to be any suggestion that I'm  
12:42:42PM 19 keeping anything from you. My understanding was that counsel  
12:42:44PM 20 for the plaintiff were going to provide you with a copy of  
12:42:47PM 21 your reports and you would have them there.  
12:42:48PM 22 A. Okay. I can check if I have them.  
12:42:50PM 23 Q. I'm quite sure that if there is something that  
12:42:54PM 24 contradicts this, they will point it out on redirect, okay?  
12:42:57PM 25 I would like to move on, if that's okay.

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12:43:00PM	1	THE COURT: Yes, I would like that. Let's move on.
12:43:06PM	2	MR. GAUDET: Absolutely.
12:43:06PM	3	BY MR. GAUDET:
12:43:06PM	4	Q. Let's talk about the '806 patent. I want to pull up the
12:43:10PM	5	patent, and the patent is JTX-2.
12:43:21PM	6	And so this is the rule swap patent, right, sir?
12:43:27PM	7	A. I think that's right, yes.
12:43:29PM	8	Q. Okay. And what I would like to do is go to the first
12:43:37PM	9	page of the specification of the patent, the first column of
12:43:43PM	10	the specification of the patent, and what I'd like to do is
12:44:17PM	11	blow up the upper left portion, beginning with rule swapping
12:44:23PM	12	in a packet network, on down to just before the summary.
12:44:26PM	13	THE COURT: What page of the patent are you on?
12:44:28PM	14	MR. GAUDET: So, Your Honor, the Bates number would
12:44:30PM	15	be 1261, I believe. And tell me when you've got that.
12:44:50PM	16	THE COURT: I've got it.
12:44:51PM	17	MR. GAUDET: Okay.
12:44:51PM	18	BY MR. GAUDET:
12:44:52PM	19	Q. And, Dr. Mitzenmacher, this is the very beginning of the
12:44:55PM	20	patent, column 1, correct?
12:44:57PM	21	A. I mean it's labeled "column 1" up top, sure. I have
12:45:02PM	22	that.
12:45:02PM	23	Q. And it's the background. It tells us what the prior art
12:45:05PM	24	was and what the problem was, correct?
12:45:07PM	25	A. That might be a typical thing the background would do. I

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12:45:13PM 1 would have to read this over again to say what this actually  
12:45:17PM 2 does.

12:45:18PM 3 Q. Okay. I just want to point out five or six sentences,  
12:45:20PM 4 and then we're going to move on.

12:45:22PM 5 The first sentence says, "Network protection  
12:45:24PM 6 devices, e.g., firewalls, implement rules with respect to  
12:45:29PM 7 packet switch network traffic entering or leaving the  
12:45:33PM 8 networks they protect."

12:45:34PM 9 Do you see that?

12:45:35PM 10 A. Yes.

12:45:35PM 11 Q. Right. And tell me, things like firewalls, they use  
12:45:41PM 12 packets to protect networks. That's been going on for a long  
12:45:46PM 13 time, right?

12:45:46PM 14 A. I think you misspoke. I think you said they use packets  
12:45:51PM 15 to protect networks, and I think you probably meant to say  
12:45:54PM 16 "use rules."

12:45:55PM 17 Q. I'm sorry. You are 100 percent right about that. They  
12:45:57PM 18 use rules. Thank you.

12:46:00PM 19 And the next sentence confirms the devices -- they  
12:46:04PM 20 compare rules with traffic, correct?

12:46:05PM 21 A. That is what it says.

12:46:07PM 22 Q. Okay. That's been going on for a long time.

12:46:12PM 23 A. I mean, that's your characterization, but that, it  
12:46:14PM 24 doesn't say, but it says it's in the background.

12:46:17PM 25 Q. Let's go to the next paragraph, and I want to highlight

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12:46:23PM 1 the sentence, "Network protection devices may require time to  
12:46:28PM 2 switch between rules."

12:46:29PM 3 Do you see that?

12:46:31PM 4 A. Yes.

12:46:31PM 5 Q. Okay. So, again, as the background of this patent,  
12:46:37PM 6 network protection devices will switch between rule sets.  
12:46:40PM 7 Switching between rule sets is something that was already  
12:46:43PM 8 done.

12:46:45PM 9 A. Well, I would say not in the manner described here, but  
12:46:52PM 10 certainly people -- I mean, this was the problem it was  
12:46:54PM 11 trying to solve, was the changing of rule sets.

12:46:58PM 12 Q. Okay. And then the next sentence says, "As the rules  
12:47:01PM 13 increase in complexity, the time required for switching  
12:47:06PM 14 between them presents obstacles for effective  
12:47:10PM 15 implementation."

12:47:10PM 16 Do you see that?

12:47:11PM 17 A. Yes.

12:47:11PM 18 Q. Okay. Then there's a few more sentences, and we're going  
12:47:14PM 19 to kind of get to the punch line.

12:47:16PM 20 "For example, a network protection device may be  
12:47:21PM 21 unable to process network traffic while switching between the  
12:47:25PM 22 rule sets due to the utilization of resources for  
12:47:29PM 23 implementing the new rule set."

12:47:31PM 24 Do you see that?

12:47:32PM 25 A. Yes.

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12:47:32PM 1 Q. Okay. And, again, that was just generally a problem the  
12:47:38PM 2 patent identified. Is that fair?

12:47:39PM 3 A. I think that's an issue that it's putting in the  
12:47:42PM 4 background, yes.

12:47:42PM 5 Q. And then I want to highlight this next one.

12:47:45PM 6 "Additionally, while implementing a new rule set, a  
12:47:49PM 7 network protection device may continue processing packets in  
12:47:55PM 8 accordance with an outdated rule set."

12:47:58PM 9 Do you see that?

12:47:58PM 10 A. Yes.

12:48:00PM 11 Q. And that was the problem, right; that you might keep  
12:48:03PM 12 using the old rule set, even though a new rule set showed up?

12:48:09PM 13 A. That's -- I would say that's an issue or something that  
12:48:14PM 14 might be looked at, but, again, that's just part of the  
12:48:20PM 15 background of the patent.

12:48:22PM 16 Q. And then the next sentence says, "In certain  
12:48:26PM 17 circumstances, e.g., in the event of a network attack, such  
12:48:31PM 18 processing may exacerbate rather than mitigate the impetus  
12:48:36PM 19 for the rule set switch."

12:48:38PM 20 Do you see that?

12:48:39PM 21 A. Yes.

12:48:41PM 22 Q. Okay. These were the problems the patent was trying to  
12:48:45PM 23 solve, right?

12:48:45PM 24 A. I would say this is the collection of background that was  
12:48:52PM 25 prior to setting of the patent and they relate to some of the

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12:48:54PM 1 issues that the patent was trying to improve.

12:48:57PM 2 Q. And the reference to an outdated rule set, that's the old

12:49:02PM 3 rule set, right, the one that's being swapped out?

12:49:24PM 4 A. That would typically, I think, outdate their --

12:49:28PM 5 correspond in some settings to an old rule set.

12:49:30PM 6 Q. So let's now shift to the accused products, okay?

12:49:37PM 7 For both the accused firewalls and the accused

12:49:42PM 8 routers and switches, when the new rule set arrives, the

12:49:47PM 9 Cisco products keep using the old outdated rule set, right?

12:49:51PM 10 A. So for the time that it takes in order to prepare a

12:49:59PM 11 packet where it needs to go, but, again, that's already after

12:50:02PM 12 multiple layers of processing, from -- you know, before it

12:50:05PM 13 even gets to the switches, it has to be, you know, checked or

12:50:09PM 14 tested or produced by the corresponding management devices,

12:50:14PM 15 so I think, relatively speaking, it's a small amount of time

12:50:21PM 16 and, you know, obviously, as we've seen, an acceptable amount

12:50:29PM 17 of time, compared to the issues of dropping packets, which --

12:50:33PM 18 or not applying rules to packets, which could lead to more

12:50:39PM 19 severe problems.

12:50:40PM 20 Q. I thought it was a more straightforward question than

12:50:44PM 21 that. If there's a part that you don't understand, please

12:50:46PM 22 tell me. I'm just trying to understand.

12:50:49PM 23 THE COURT: Well, as I understand the evidence,

12:50:57PM 24 Cisco's new products eliminate that problem. They no longer

12:51:06PM 25 use the outdated rule set while the processing is going on as



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12:51:23PM 1 soon as the -- what was the word? Comprised?

12:51:25PM 2 MR. GAUDET: Compile? I think compile, Your Honor.

12:51:30PM 3 THE COURT: Yeah, compile the new rule set -- they

12:51:39PM 4 begin using the new rules.

12:51:42PM 5 MR. GAUDET: Your Honor, that is exactly the point

12:51:43PM 6 that we need to make clear, because we disagree with what the

12:51:51PM 7 evidence showed about that. So I'm going to ask him some

12:51:54PM 8 questions about that point.

12:51:55PM 9 I want to pull up DTX-1290.

12:52:02PM 10 THE COURT: Which book is this in?

12:52:09PM 11 MR. GAUDET: Your Honor, give me just one moment.

12:52:21PM 12 (There was a pause in the proceedings.)

12:52:21PM 13 MR. GAUDET: Your Honor, it's in the small book,

12:52:23PM 14 DTX-1290. It's in the small cross book.

12:52:31PM 15 THE COURT: Okay.

12:52:36PM 16 BY MR. GAUDET:

12:52:36PM 17 Q. I want to go to Page 616, which actually has a Bates

12:52:40PM 18 number of 668.

12:52:44PM 19 THE COURT: All right. Do you want to introduce

12:52:46PM 20 this exhibit?

12:52:48PM 21 MR. GAUDET: I do, Your Honor, yes.

12:52:49PM 22 THE COURT: This is DTX-1290?

12:52:55PM 23 MR. GAUDET: That's correct.

12:52:56PM 24 THE COURT: DTX-1290, and this is titled "ASA CLI

12:53:22PM 25 configuration." Let me check again to make sure I understand

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12:53:52PM 1 what ASA and CLI mean.

12:53:54PM 2 ASA is Adaptive Security Appliance. CLI is Command

12:53:55PM 3 Line Interface. Okay.

12:53:57PM 4 BY MR. GAUDET:

12:53:58PM 5 Q. So the page that we want to go to, Your Honor, is Bates

12:54:02PM 6 number 668, and then over to 669. Those are the Bates

12:54:08PM 7 numbers on the bottom of the page.

12:54:12PM 8 THE COURT: 668 and 669.

12:54:23PM 9 MR. GAUDET: That's correct.

12:54:23PM 10 BY MR. GAUDET:

12:54:23PM 11 Q. Doctor, you see that there's a chart kind of at the

12:54:25PM 12 bottom of Page 668, up to the top of 669. Do you see that?

12:54:28PM 13 A. Yes.

12:54:29PM 14 Q. And this is -- I believe it might be the same chart you

12:54:31PM 15 talked about at one point yesterday; is that correct?

12:54:33PM 16 A. It may be. It looks very similar.

12:54:41PM 17 Q. Okay. And you see the chart. It breaks things up into

12:54:43PM 18 time periods, right, before compilation, during compilation,

12:54:47PM 19 and after compilation. Do you see that?

12:54:50PM 20 A. Yes.

12:54:50PM 21 Q. Okay. And compilation -- that is the optimization.

12:54:56PM 22 That's the configuration that enables rules to be looked up

12:55:02PM 23 faster. That's what lets them run fast and gets them ready

12:55:06PM 24 to use, right?

12:55:07PM 25 A. I don't think I'd characterize it maybe that way.

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12:55:10PM 1 "Compilation," I think, is just the process of preparing the  
12:55:14PM 2 rules for placement in the ternary content-addressable  
12:55:20PM 3 memory.

12:55:20PM 4 Q. Okay. Well, let's look at what the document says. Let's  
12:55:22PM 5 highlight the first sentence of the -- it would be the second  
12:55:27PM 6 paragraph above the chart on Page 68.

12:55:37PM 7 "The performance is affected because the rule engine  
12:55:40PM 8 compiles rules to enable faster rule lookup."

12:55:46PM 9 Do you see that?

12:55:46PM 10 A. Yes. I mean, you've put them in the TCAM because the  
12:55:51PM 11 TCAM -- sorry -- the ternary content-addressable memory  
12:55:56PM 12 provides a way of performing on the rules faster.

12:55:59PM 13 I mean, that's just saying you always want to put  
12:56:01PM 14 things into the ternary content-addressable memory because  
12:56:06PM 15 that's the right setup for matching rules.

12:56:06PM 16 Q. And we'll have plenty of Cisco witnesses who will testify  
12:56:14PM 17 about this, as well. I want to understand your  
12:56:15PM 18 understanding.

12:56:15PM 19 You're saying that that reference compiles rules to  
12:56:19PM 20 enable faster rule lookup, and all that's talking about is  
12:56:24PM 21 moving the rules to a new place.

12:56:25PM 22 A. That's part of compiling. I mean, it says, "to enable  
12:56:30PM 23 faster lookup." That's in the ternary content-addressable  
12:56:35PM 24 memory. That's the way I would interpret -- that's what the  
12:56:38PM 25 active compilation does; it gets things so that you can move

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12:56:41PM 1 them into the TCAM.

12:56:43PM 2 Q. Right, and it also -- it makes them -- this process of

12:56:47PM 3 compiling the rules, sir, it's very processor-intensive. In

12:56:51PM 4 other words, it takes a lot of the system's resources to

12:56:55PM 5 compile the rules, right?

12:56:55PM 6 A. It can certainly take some system resources. I haven't

12:56:59PM 7 measured it, but I do note that while it's compiling, its

12:57:08PM 8 rate gets lower. That may be an issue with the compiling, or

12:57:11PM 9 it may just be an issue of the fact that it's trying to match

12:57:14PM 10 the new rules.

12:57:15PM 11 Q. Okay. Now, I want to pull the chart together --

12:57:18PM 12 MR. GAUDET: And, Your Honor, this will be the last

12:57:20PM 13 thing I cover before lunch, if that's sounds good, to just

12:57:23PM 14 talk about this chart.

12:57:24PM 15 THE COURT: Yes, that sounds good.

12:57:27PM 16 MR. GAUDET: Okay.

12:57:26PM 17 BY MR. GAUDET:

12:57:36PM 18 Q. Now, the chart shows the default mode, right? That's the

12:57:40PM 19 old mode, correct?

12:57:41PM 20 A. Yes, that's before the transactional commit mode.

12:57:45PM 21 Q. In the old mode, before compilation happens, you match

12:57:51PM 22 the old rules. At that point, you know, the new rules

12:57:54PM 23 haven't even gotten there yet, right?

12:57:57PM 24 THE COURT: The one on the bottom --

12:57:59PM 25 MR. GAUDET: We're up on the top, Your Honor. Let's

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12:58:02PM 1 highlight what we're talking about.

12:58:03PM 2 Mr. Simons, if you would, highlight "Matches old  
12:58:06PM 3 rules."

12:58:06PM 4 THE COURT: Well, it says that under both of them.

12:58:09PM 5 MR. GAUDET: Absolutely, and this is basically --

12:58:09PM 6 BY MR. GAUDET:

12:58:12PM 7 Q. The new rules haven't gotten there yet, so we have no  
12:58:15PM 8 choice but to match the old rules, right?

12:58:17PM 9 A. Well, I mean, they may have gotten there, but they  
12:58:20PM 10 haven't been compiled yet.

12:58:22PM 11 Q. And now the next one is we start compiling the new rules,  
12:58:26PM 12 right? That's the next column over, right?

12:58:29PM 13 A. When the rules come in -- so in the old model, while it's  
12:58:35PM 14 compiling, it will go through -- and I think I talked about  
12:58:38PM 15 this -- sort of difficult challenges that they were facing in  
12:58:45PM 16 trying to apply new rules while they were compiling, because  
12:58:51PM 17 the old rules were still in the TCAM, ternary  
12:58:57PM 18 content-addressable memory, still in the system.

12:59:00PM 19 Q. The slowdown in the old system was because you were  
12:59:05PM 20 trying to apply rules that hadn't been compiled yet; they  
12:59:08PM 21 weren't ready for easy searching. Is that right?

12:59:10PM 22 A. Yeah. I mean, that's what I'm saying. You want to move  
12:59:16PM 23 everything into the ternary content-addressable memory  
12:59:20PM 24 because that's a faster way to match. So that is why you  
12:59:23PM 25 split things this way, into the phases in the transactional

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12:59:26PM 1 system.

12:59:27PM 2 Q. Okay. So let's take out the old highlighting, and let's

12:59:30PM 3 highlight "during compilation."

12:59:33PM 4 So in the old system, during compilation, we matched

12:59:37PM 5 the new rules, even though they haven't been compiled yet.

12:59:40PM 6 We just go ahead and start using them right way, right?

12:59:45PM 7 That's the whole system.

12:59:46PM 8 A. That is the plan. As noted, there are various problems

12:59:49PM 9 with that.

12:59:50PM 10 Q. Okay. The new system is underneath that. This is the

12:59:52PM 11 one you're accusing of infringement. Let's highlight "during

12:59:56PM 12 compilation" underneath it.

12:59:57PM 13 The new system -- the new rules arrive. We compile

01:00:01PM 14 them, we get them ready for searching, but we keep using the

01:00:04PM 15 old rules, the outdated rules, right?

01:00:07PM 16 A. Right. I mean, we saw documents that said, for instance,

01:00:13PM 17 that the customer said, you know, the very minimal delay of

01:00:16PM 18 the compilation, compared to the time gathering the rules,

01:00:20PM 19 that that was less important than the issues related to

01:00:23PM 20 dropping or not being able to handle the traffic.

01:00:27PM 21 So I agree it's a trade-off, but that's exactly what

01:00:32PM 22 the patent was designed to help with.

01:00:34PM 23 Q. Well, sir, we're going to get back to that. That's most

01:00:37PM 24 certainly not what the abstract just said, right? The

01:00:39PM 25 abstract told us, don't use outdated rules, right?

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01:00:42PM 1 A. No, not at all. I mean, these things are all trade-offs  
01:00:46PM 2 that said that ideally you want to use the old rules for as  
01:00:51PM 3 small a time as possible.

01:00:52PM 4 But, obviously, there are other problems that it  
01:00:54PM 5 could lead to, such as not being be able to handle the  
01:00:57PM 6 traffic, having to drop packets, and so what it was doing was  
01:01:01PM 7 providing a system precisely to try and, I think, minimize  
01:01:05PM 8 the amount of time that you'd have old rules while  
01:01:08PM 9 maintaining performance.

01:01:09PM 10 Q. One last question, and then I'll propose maybe we take  
01:01:11PM 11 our lunch break.

01:01:13PM 12 This is with respect to the firewalls and the  
01:01:17PM 13 transactional commit model.

01:01:21PM 14 A. That sounds right.

01:01:22PM 15 Q. The same is true with respect to the routers and the  
01:01:25PM 16 switches under what's called the hitless ACL update; namely,  
01:01:30PM 17 when the new rules arrive, we keep using the old rules during  
01:01:35PM 18 the compilations, correct?

01:01:36PM 19 A. I'm not sure that's true, and I certainly don't think  
01:01:41PM 20 it's true in all cases.

01:01:44PM 21 I think the issue is sometimes there that they  
01:01:47PM 22 arrange to drop packets. There are various settings there,  
01:01:51PM 23 and I think it's more complicated than you're saying.

01:01:53PM 24 Q. With the hitless ACL, after the new rules arrive, did the  
01:01:59PM 25 system keep using the old rules while it's empowering the new

~~Mitzenmacher, M. - Cross~~

01:01:59PM 1 rules?

01:02:03PM 2 A. You're saying the hitless ACL, so I wasn't sure if you

01:02:06PM 3 were talking about the previous model or the new model. But

01:02:10PM 4 if you're talking about under the new system, right, it will,

01:02:13PM 5 yes. Until the stuff is ready for the actual swap, it will

01:02:18PM 6 use what's in the system.

01:02:21PM 7 Q. The system you are accusing of infringement keeps using

01:02:25PM 8 the old rules, even after the new rules arrive, correct?

01:02:29PM 9 A. Well, that's because it has to compile them in order to

01:02:33PM 10 put them into the system.

01:02:34PM 11 Q. Exactly.

01:02:35PM 12 A. But in the switches and routers, there isn't any system

01:02:37PM 13 like -- you know, in the previous system, it would actually

01:02:44PM 14 just drop packets, so that would be an even worse problem.

01:02:52PM 15 It's not an apples-to-apples comparison, because the default

01:02:56PM 16 model is different than the routers and switches.

01:02:59PM 17 THE COURT: All right. How do we know -- you're

01:03:02PM 18 saying the old system is on top and the new system is on the

01:03:06PM 19 bottom?

01:03:07PM 20 THE WITNESS: He switched to the different products,

01:03:11PM 21 sir. Like this chart is for the firewall products, but he

01:03:15PM 22 was talking about the other set of products, so we should

01:03:19PM 23 erase these charts, because they don't apply to this other

01:03:23PM 24 set of products.

01:03:26PM 25 THE COURT: This applies only to the firewalls?



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01:03:29PM 1 THE WITNESS: Yes.

01:03:30PM 2 THE COURT: Is that right, Counsel? Well, I can't

01:03:32PM 3 ask you.

01:03:32PM 4 MR. GAUDET: Well, Your Honor, the document is still

01:03:35PM 5 up. We can take the document down.

01:03:36PM 6 My question to him was --

01:03:38PM 7 THE COURT: Don't take anything down. Put it back.

01:03:42PM 8 MR. GAUDET: Put it back up. Put it back up. Put

01:03:42PM 9 it back up.

01:03:44PM 10 My question to him was with respect to the other

01:03:47PM 11 products, the ASA -- sorry, the routers and the switches. Is

01:03:53PM 12 it the same with respect to the new thing they are accusing?

01:03:58PM 13 In other words, is this basic logic the same; that in those

01:04:02PM 14 other products, okay, the routers and the switches, under the

01:04:07PM 15 new model, he's accusing, when the new rules arrive, we keep

01:04:11PM 16 using the old rules during compilation? That was my question

01:04:15PM 17 to him.

01:04:16PM 18 MR. HANNAH: Your Honor, if he's going to start

01:04:19PM 19 talking about other products, I think he should show him the

01:04:23PM 20 documents for the other products, rather than showing him

01:04:25PM 21 documents for something else.

01:04:26PM 22 THE COURT: Wait a minute.

01:04:30PM 23 How do I know which is the new system and which is

01:04:33PM 24 the old system? There's nothing on here with the date or

01:04:39PM 25 anything. You're telling me, in the way you asked the

~~Mitzenmacher, M. - Cross~~

question, that the old system is on top and the new system is on the bottom. That's what you're telling me, Counsel. Is that right?

MR. GAUDET: Yeah, and I'll establish that with the witness, if that would be helpful.

BY MR. GAUDET:

Q. Dr. Mitzenmacher, the old system is on top, right?

A. I guess I'm not sure what you mean by "old system." Here it's referring to it as the default, and I believe they use something similar in the previous products.

THE COURT: It says "default" on top and "transactional" on the bottom. I don't know if that changes anything, but we'll take our luncheon recess now and you can get that straight, so that we can straighten it out after our luncheon recess. We'll resume at 2:05.

(The proceedings recessed at 1:05 p.m.)

CERTIFICATION

I certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

\_\_\_\_\_/s/\_\_\_\_

Carol L. Naughton

May 13, 2020

Carol L. Naughton, Official Court Reporter